

THE ACRIDOIDEA (ORTHOPTERA) OF MADAGASCAR

II. ACRIDIDAE, ACRIDINAE

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SYNOPSIS

The subfamily Acridinae of the family Acrididae of Madagascar is revised. One new species is described. Inadequately described genera and species are redescribed and synonymy checked. Interrelation between genera and species are briefly discussed.

Subfamily ACRIDINAE

THE majority of the family Acridinae are represented by common and widely distributed African genera and species and only a few of them may be regarded as endemic. The implications of this position will be discussed in the concluding zoogeographical part of the present work. However, it is of some interest to point out now that the subfamily Truxalinae, though distributed all over the world except Australia, is not found in Madagascar. Also the subfamilies Dericorythinae, Romaleinae, Lithidiinae, Tropidopolinae (represented in the Comoro Is.), Euryphyminae, Egnatiinae and Eremogryllinae have not so far been found in Madagascar. All these subfamilies are represented in Africa, some of them being confined only to the African continent.

As far as possible, all endemic genera and species of Madagascar are figured and internal sclerotized parts of the genitalia studied and figured as well. The latter character appears as being the most important for understanding the interrelation between genera and species.

In this part, as in Part I, the Acridoidea of Madagascar and the nearest coastal islands only are revised. Comoro and other more remote islands are not included.

KEY TO GENERA

- 1 (12) Intercalary vein of medial area of elytron not serrated, or absent.
- 2 (11) Fastigial foveolae absent.
- 3 (8) Body strongly elongated, stick-like; head elongated, narrow, acutely conical (Figs. 2, 3, 5).
- 4 (7) Prosternal process absent.
- 5 (6) Hind wing with speculum, transparent, colourless or slightly lemon-yellowish
ACRIDA (p. 246)
- 6 (5) Hind wing without speculum, matt, brightly coloured in red, yellow and brown in apical and posterior parts *CHROMACRIDA* (p. 250)
- 7 (4) Large, pyramidal prosternal process present *GELASTORHINUS* (p. 253)
- 8 (3) Body moderately elongated, not stick-like; head short or moderately elongated, conical or subconical.

- 9 (10) Fully winged. Antenna shorter than head and pronotum together. Comparatively large **DURONIA** (p. 255)
- 10 (9) Micropterous. Antenna longer, in male much longer, than head and pronotum together. Comparatively small (Fig. 6) **PARALOBOPOMA** (p. 256)
- 11 (2) Lower fastigial foveolae present (Fig. 7) **GYMNOBOTHRUS** (p. 258),
- 12 (1) Intercalary vein of medial area of elytron strong, serrated (in female sometimes not serrated).
- 13 (30) Antenna filiform, sometimes thickened in apical part. Head globular, subglobular or subconical; frons, in profile, straight or excurved.
- 14 (15) Hind tibia in apical part expanded. Fastigial foveolae absent. **PARACINEMA** (p. 262)
- 15 (14) Hind tibia in apical part not expanded. Fastigial foveolae present or absent.
- 16 (17) Fastigial foveolae elongated, twice or more as long as their width, trapezoidal (Fig. 11) **AIOLOPUS** (p. 264)
- 17 (16) Fastigial foveolae, if present, short, as long as or slightly longer than their width, or irregular form.
- 18 (19) Anterior and lower margins of lateral lobe of pronotum form attenuate and protruding angle **PTERNOSCIRTUS** (p. 267)
- 19 (18) Lower anterior angle of lateral lobe of pronotum rounded or obtusangular, but not attenuate and not protruding.
- 20 (21) Prozona of pronotum with two large, tooth-like projections (Fig. 12) **TRILOPHIDIA** (p. 269)
- 21 (20) Prozona of pronotum without projections.
- 22 (29) Head above subglobular, smooth. Mesosternal interspace less than twice as wide as its length.
- 23 (24) Median carina of pronotum deeply excised by basal transverse sulcus. Lower external area of hind femur slightly expanded (Fig. 13) **PYCNOCRANIA** (p. 270)
- 24 (23) Median carina of pronotum crossed but not excised by transverse sulcus. Lower external area of hind femur not expanded.
- 25 (26) Posterior margin of pronotum elongated, acutangular; dorsum crest-shaped **GASTRIMARGUS** (p. 271)
- 26 (25) Posterior margin of pronotum angular or rounded; dorsum tectiform or slightly saddle-shaped.
- 27 (28) Of medium size. Pronotum mostly with white X-shaped pattern. Hind wing with infumate transverse fascia (Fig. 16) **OEDALEUS** (p. 274)
- 28 (27) Large. Pronotum without X-shaped pattern. Hind wing without fascia (Fig. 17) **LOCUSTA** (p. 277)
- 29 (22) Head subconical, rugose. Mesosternal interspace more than twice as wide as its length (Fig. 18) **ACROTYLUS** (p. 278)
- 30 (13) Antenna compressed and slightly widened. Head conical; frons, in profile, slightly incurved (Fig. 19) **CALEPHORUS** (p. 281)

ACRIDA Linnaeus, 1758

Large, with strongly elongated, almost stick-like body. Antenna ensiform, as long as or slightly shorter than head and pronotum together. Head strongly elongated, acutely conical; fastigium of vertex strongly elongated, with parabolic or obtusangular apex; fastigial foveolae absent; frons strongly or slightly incurved; frontal ridge low, narrow, strongly compressed at apex, shallowly sulcate on whole length, with obtuse lateral carinulae. Dorsum of pronotum elongated, flat or weakly tectiform, with sharp carinae; lateral carinae straight or slightly incurved, or slightly excurved, or divergent in metazona; dorsum crossed by posterior sulcus only; metazona as long as or slightly shorter, or slightly longer than prozona, its posterior margin obtuse or acutangular; mesosternal interspace open. Elytra and wings fully developed with acute apex; elytra with dense reticulation; intercalary vein of medial area present;

costal and sometimes subcostal veins finely serrated; medial area of wing widened, lustrous, forming speculum. Hind femur strongly elongated and strongly narrowed; lobes of hind knee with acute apices, upper internal lobe slightly longer than external one. Arolium large. Male supra-anal plate elongate angular. Cercus narrow conical, with obtuse apex. Subgenital

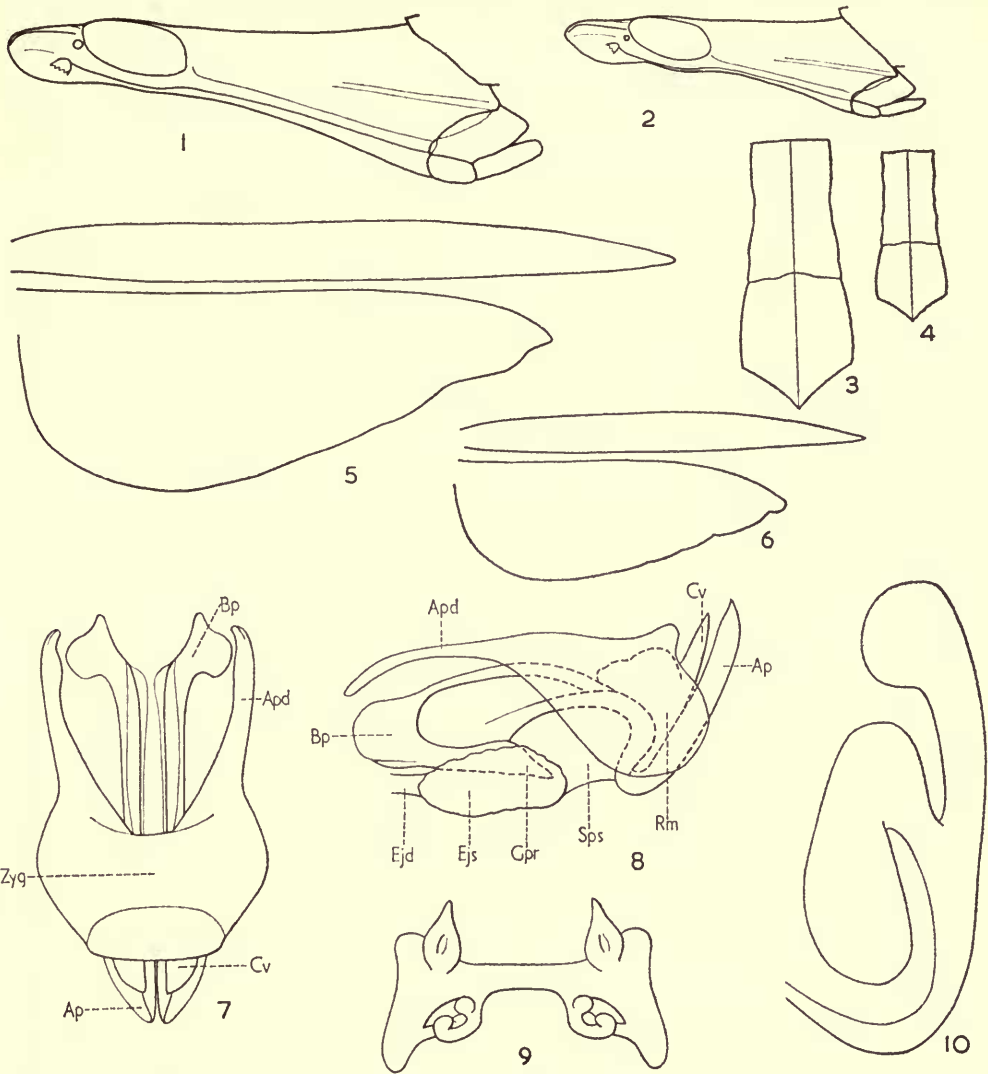


FIG. 1. *Acrida madecassa* (Brancsik, 1893). 1, head of female. 2, the same, male. 3, dorsum of pronotum, female. 4, the same, male. 5, elytron and wing, female. 6, the same, male. 7, phallic complex from above, ectophallic membrane and epiphallus removed. 8, the same, lateral view. 9, epiphallus. 10, spermatheca.

Ap, apical valve of penis. Apd, apodemus of cingulum. Bp, basal valve of penis. Cv, valve of cingulum. Ejd, ejaculatory duct. Ejs, ejaculatory sac. Gpr, gonopore process. Rm, ramus of cingulum. Sps, spermatophore sac. Zyg, zygoma of cingulum (the same lettering in all figures).

plate elongate, acutely conical or short acutely conical, with upper projection. Ovipositor short, robust, with curved valves.

Type species : *Gryllus Acrida turritus* Linnaeus, 1758.

KEY TO SPECIES

- 1 (2) Transverse sulcus about the middle of pronotum ; lateral carinae undulated in prozona ; posterior margin of metazona obtusangular. Apex of elytron elongated, acute *madecassa* (Brancs.)
- 2 (1) Transverse sulcus before the middle of pronotum ; lateral carinae in prozona incurved, in metazona strongly excurved ; posterior margin of metazona elongated, acutangular, with pointed apex. Apex of elytron not elongated, comparatively obtuse *subtilis* Burr

Acrida madecassa (Brancsik, 1893)

(Text-figs. 1, 9)

Tryxalis madecassa Brancsik, 1893 : 186.

Acrida madecassa (Brancsik, 1893) ; Kirby, 1902 : 64.

♂. Large and slender. Head strongly elongated, slender, relatively narrow in basal part ; frons, in profile, slightly incurved ; fastigium of vertex long, with parallel lateral margins and rounded apex. Lateral carinae of pronotum in prozona undulated, in metazona slightly excurved ; transverse sulcus crosses about middle of dorsum ; posterior margin of metazona obtusangular, with incurved sides. Elytra well produced beyond hind knee, narrow, with elongated, acute apex. Lateral lobes of hind knee short, acute ; upper lobe wider than lower one. Subgenital plate with elongated, acute apex.

Phallic complex : zygoma large and moderately sclerotized, apodemus long ; valve of cingulum short, subacute at apex ; basal valve of penis with lateral projection ; apical valve moderately narrow, longer than valve of cingulum ; flexure comparatively thick. Epiphallus with articulated ancorae and bilobate lophi, lobes short, rounded.

General colouration from green to brownish ; elytra uniformly green or with pattern, mostly brownish at apex ; hind wing slightly yellowish, sometimes slightly infumate.

♀. As the male but larger. Lateral carinae of pronotum in prozona more strongly undulated. Spermatheca with apical diverticulum widened at apex, preapical one downcurved, sac-like.

Length of body ♂ 38.0-43.0, ♀ 60.0-74.0 ; pronotum ♂ 6.0-7.0, ♀ 9.5-12.0 ; elytron ♂ 32.0-36.0, ♀ 49.0-63.0 ; hind femur ♂ 24.0-27.0, ♀ 34.5-41.0 mm.

Madagascar Ouest : Ampijoroa, Tsaramandroso, 1 ♀. Dct. Miandrivazo, iii. 1960, 1 ♀ (*Gruchet*).

Madagascar Centre : Tananarive, Tsimbazaza, xii. 1934, 1 ♂ ; 21. i. 1948, 1 ♀ ; 20. iv. 1948, 1 ♀ ; i. 1960, 1 ♂, 1 ♀. Arivonimamo, 10. x. 1948, 1 ♀. Manankazo Station Forestière, km 130, Route Majunga, 6. ii. 1948, 1 ♀ (*P. Cachan*).

Madagascar Est : Ile Sainte-Marie, Ambohidena, v. 1959, 2 ♀ (*E. Razafimandimby*). Pce. de Tamatave, Ambodiatafana, vi. 1958, 1 ♀ (*Randimby*).

Madagascar Sud : Anakao, 8. iv. 1953, 1 ♀. Itampolo, v. 1951, 1 ♀. Manadrotsy, Betroka, 1 ♀ (*J. Elie*).

Acrida subtilis Burr, 1902

(Text-figs. 2, 9)

♂. Of medium size and relatively robust. Head moderately elongated, relatively wide in basal part ; frons, in profile, moderately incurved ; fastigium of vertex long, narrow, with broadly rounded apex. Lateral carinae of pronotum, in prozona incurved, in metazona strongly excurved

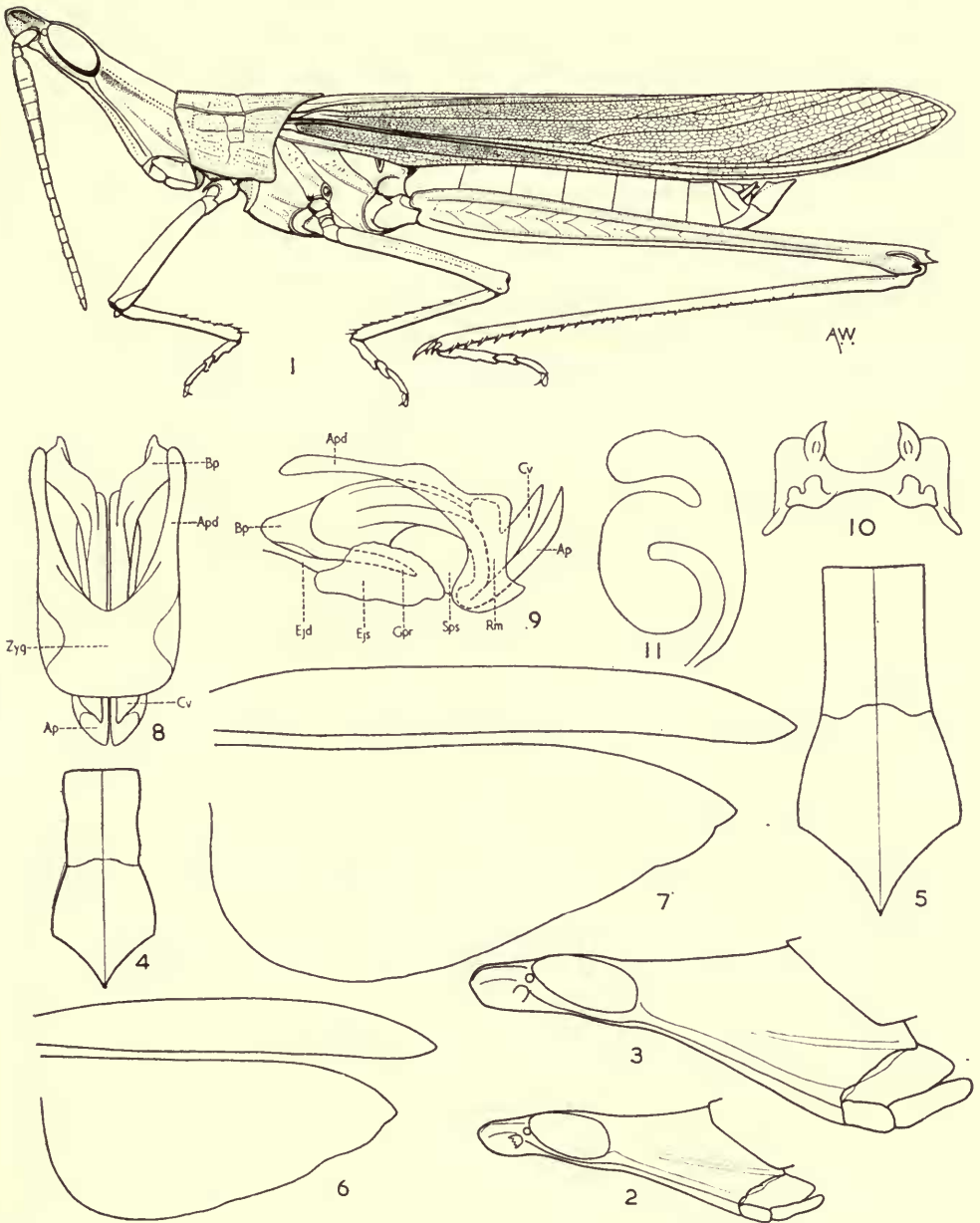


FIG. 2. *Acrida subtilis* Burr, 1902. 1, male. 2, head of male. 3, the same, female. 4, dorsum of pronotum, male. 5, the same, female. 6, elytron and wing, male. 7, the same, female. 8, phallic complex from above, ectophallic membrane and epiphallus removed. 9, the same, lateral view. 10, epiphallus. 11, spermatheca.

and divergent; transverse sulcus before middle of pronotum; posterior margin of metazona elongated, acutangular, with pointed apex and incurved sides. Elytron slightly produced beyond hind knee, wide, with short, wide apical part and comparatively obtuse apex. Lateral lobes of hind knee moderately long, acute, upper lobe being slightly wider than lower one. Subgenital plate moderately long, with subacute apex.

Phallic complex: zygoxa of cingulum large, elongated; apodemus long; valve of cingulum short, with acute apex; basal valve of penis with lateral expansion; apical valve of penis narrow, slightly longer than valve of cingulum; flexure rather thick. Epiphallus with articulated ancorae and bilobate lophi, with closely placed lobes.

General colouration green. Elytra green, sometimes with brownish pattern; hind wing slightly yellowish, sometimes slightly infumate.

♀. As the male, but larger. Head relatively more widened in basal part. Spermatheca with moderately large apical and large, downcurved, sac-like preapical diverticula.

Length of body ♂ 30.0–36.0, ♀ 50.0–54.0; pronotum ♂ 5.0–6.0, ♀ 10.0–10.5; elytron ♂ 25.5–28.5, ♀ 39.4–41.0; hind femur ♂ 19.0–20.0, ♀ 28.0–30.5 mm.

Madagascar Centre: Ankazobe, Forêt Ambohitantely, 2.ii.1948, 1 ♀ (*R. Paulian*).

Madagascar Est: Ambalavao, i.1934, 2 ♂ (*R. Paulian*).

Madagascar Sud-Ouest: Sakaraha, Lambomakandro, iii.1956, 1 ♀ (*R. Paulian*).

Madagascar Sud: Monandrotsy, Betroka, 1 ♀ (*J. Elie*).

CHROMACRIDA Dirsh, 1952

Large, strongly elongated; ratio of length to maximal width of body 10.1–12.2. Antenna narrow ensiform, longer than head and pronotum together. Head strongly elongated, narrow conical; fastigium of vertex strongly elongated, large, spatulate; fastigial foveolae absent; frons, in profile, slightly incurved; frontal ridge low, narrow, at apex compressed, shallowly sulcate on whole length, with obtuse lateral carinulae. Pronotum elongated, dorsum flat, median and lateral carinae sharp, linear; posterior transverse sulcus crossing dorsum beyond middle. Mesosternal interspace elongated, its lateral margins incurved, anterior part widened. Elytra long, narrow, with strongly acute apex, reticulation dense; intercalary vein of medial area present; costal and subcostal veins scarcely serrated. Hind wing shorter than elytron, narrow, without speculum; membrane matt, apical and posterior parts brightly coloured. Hind femur strongly elongated and very narrow, ratio of length to width 18–19. Upper lobes of hind knee of equal length, short. Arolium large. Male supra-anal plate elongate angular. Cercus short, narrow conical. Subgenital plate short conical, with acute apex. Ovipositor short, robust. Valves wide, slightly curved.

Type species: *Acrida radamae* Saussure, 1899.

KEY TO SPECIES

- 1 (2) Large and less slender. Frons, in profile, more concave. Lateral carinae of pronotum in prozona straight and divergent; posterior margin of metazona pointed. Hind wing twice as long as its width (Fig. 3) . . . *radamae* (Saussure)
- 2 (1) Smaller and more slender. Frons, in profile, less concave. Lateral carinae of pronotum in prozona undulated and parallel; posterior margin of metazona acutangular, but not pointed. Hind wing three times as long as its width. (Fig. 4) *brunneriana* (I. Bolivar)

Chromacrida radamae (Saussure, 1899)

(Text-figs. 3, 9)

Acrida radamae Saussure, 1899 : 629.*Chromacrida radamae* (Saussure, 1899) ; Dirsh, 1952 : 135.

♂. Slender. Antenna narrow ensiform, longer than head and pronotum together. Head strongly elongated ; frons, in profile, strongly concave ; fastigium of vertex with parallel sides and widely rounded apex. Lateral carinae of pronotum in prozona straight and divergent, in metazona divergent and excurved ; posterior margin of metazona acutangular, with pointed apex. Elytron long and narrow, ratio of length to width 12:1, at apex acute. Hind wing shorter

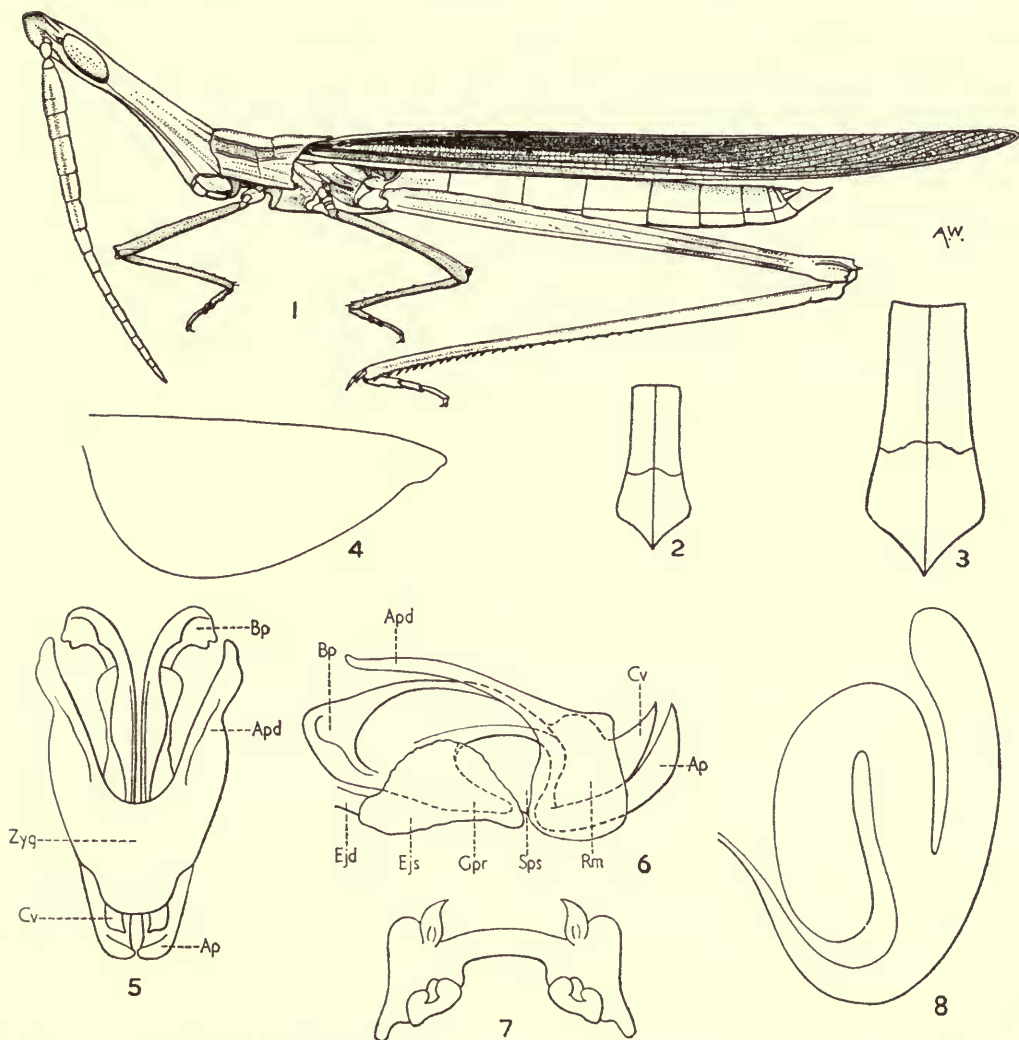


FIG. 3. *Chromacrida radamae* (Saussure, 1899). 1, male. 2, dorsum of pronotum, male. 3, the same, female. 4, hind wing. 5, phallic complex from above, ectophallic membrane and epiphallus removed. 6, the same, lateral view. 7, epiphallus. 8, spermatheca.

than elytron, wide, ratio of length to width about 2.1. Hind femur well produced beyond end of abdomen.

Phallic complex : zygoma of cingulum elongated, large ; apodemus comparatively short and wide ; valve of cingulum short, wide with acute apex ; basal valve of penis excurved at proximal end ; apical valve of penis robust ; upcurved, with acute apex ; flexure thin. Epiphallus with articulated ancorae and deeply bilobate lophi.

General colouration dirty-yellowish, sometimes greenish ; hind wing on external margin blackish-brown, gradually turning to flame-red ; basal part creamy-yellowish.

♀. As the male, but larger. Spermatheca with large, narrow apical and large, downcurved, sac-like preapical diverticula.

Length of body ♂ 44.0-45.0, ♀ 60.0-71.0 ; pronotum ♂ 6.3, ♀ 9.3-10.4 ; elytron ♂ 39.5-40.0, ♀ 56.0-61.0 ; hind femur ♂ 27.0-28.0, ♀ 32.5-41.0 mm.

Madagascar Ouest : Morondava, forêt sud de Befasy, i. 1956, 1 ♂, 3 ♀ (*R. Paulian*).

Madagascar Centre : P. K. 132, Rte de Majunga, ix. 1957, 1 ♀ (*J. Elie*).

Madagascar Est : Manakara, xi. 1957, 1 ♀ (*J. Elie*). Ivohibe, Tarafangana, 1 ♀. Ranomafana, Ifanadiana, 1 ♀.

Madagascar Sud-Ouest : Tulear-Sakaraha, Zombitsy, 630 m. xii. 1959, 1 ♂ (*E. Raharizonina*). Lambonakandro, 550 m. Sakaraha, 4-7.ii. 1958, 2 ♀ (*P. Griveaud*). Tulear, iii-iv. 1953, 1 ♂, 1 ♀ (*A. Robinson*).

Madagascar Est : Réserve nat. Ambatovositra, Andranomalaza, xii. 1956 (*P. Soga*).

Madagascar Sud : Cap. Sainte Marie, xii. 1951, 1 ♀ (*R. Paulian*). Fort Dauphin, iv. 1953, 1 ♂ (*R. Paulian*).

Chromacrida brunneriana (I. Bolivar, 1893)

(Text-figs. 4, 9)

Tryxalis brunneriana I. Bolivar, 1893 : 161.

Acrida radamae (♂) Saussure, 1899 : 629 ; Dirsh, 1952 : 136.

Acrida sanguinea Saussure, 1899 : 629 ; Dirsh, 1952 : 136.

Acrida intercalata Burr, 1902 : 162 ; Dirsh, 1952 : 136.

♂. Very slender. Antenna narrow ensiform, longer than head and pronotum together. Head strongly elongated, narrow ; frons, in profile, moderately concave ; fastigium of vertex slightly widened towards apex, which is rounded. Lateral carinae of pronotum in prozona undulated, parallel ; in metazona slightly excurved ; posterior margin of metazona acutangular, but not pointed. Elytron long and narrow, ratio of length to width 13.5, with pointed apex. Hind wing considerably shorter than elytron, narrow, ratio of length to width about 3.1. Hind femur produced far beyond end of abdomen.

Phallic complex : zygoma of cingulum large, elongated ; apodemus comparatively long and narrow ; valve of cingulum short, narrow, with acute apex ; basal valves of penis moderately excurved at proximal end ; apical valve of penis widening towards distal end, apex, in profile, acute ; flexure comparatively thick. Epiphallus with articulated ancorae and shallowly bilobate lophi.

General colouration yellowish-brown ; external margin of hind wing blackish-brown, anterior part of wing, apical lobe and basal part crimson red, gradually turning creamy-pale towards base.

♀. As the male, but larger. Spermatheca with long, apical diverticulum curved at apex and moderately large, downcurved, sac-like preapical diverticulum.

Length of body ♂ 32.0-33.5, ♀ 47.0-53.0 ; pronotum ♂ 4.5-5.0, ♀ 7.0-8.0 ; elytron ♂ 28.0-30.0, ♀ 50.0-51.0 ; hind femur ♂ 19.0-21.5, ♀ 30.5-33 mm.

The newly moulted specimens of this species possess milky-white hind wings, which attain their full colouration gradually during sexual maturation.

Madagascar Centre : Ankazobe, Forêt d'Ambohitantly, 21.xii.1948, 1 ♀ (*R. Paulian*).

Madagascar Est : Ankadimanga, Manjakandriana, xii.1957, 1 ♀ (*J. Elie*). Moramanga, 1 ♀ (*P. Griveaud*).

Madagascar Sud : Fort Dauphin, iii.1960, 1 ♀ (*Randriamasy*).

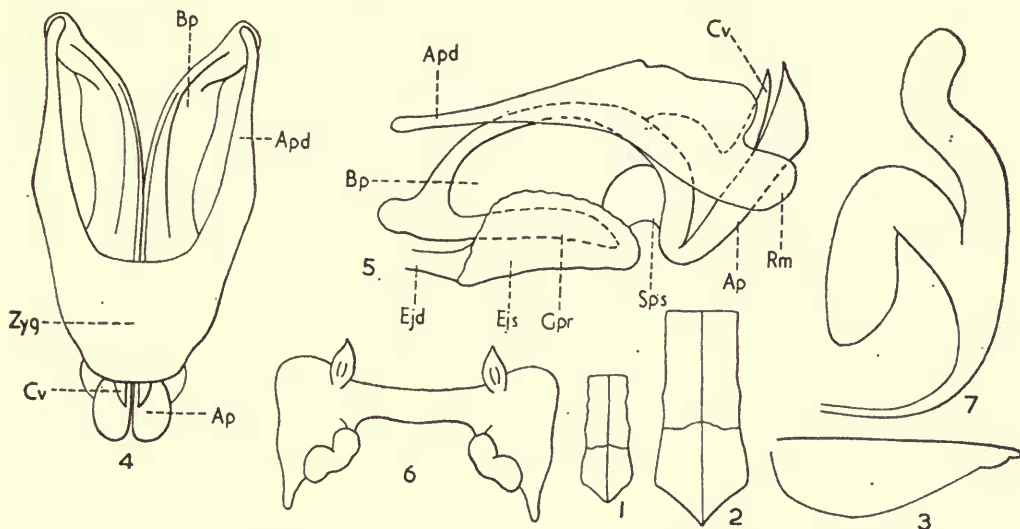


FIG. 4. *Chromacrida brunneriana* (L. Bolivar, 1893). 1, dorsum of pronotum, male. 2, the same, female. 3, hind wing. 4, phallic complex from above, ectophallic membrane and epiphallus removed. 5, the same, lateral view. 6, epiphallus. 7, spermatheca.

GELASTORHINUS Brunner, 1893

Of medium size, strongly elongated. Integument smooth. Antenna ensiform, longer than head and pronotum together. Head elongated, conical; fastigium of vertex shorter than longest diameter of eye, with parabolic or widely obtusangular apex; fastigial foveolae absent; frons straight; frontal ridge narrow, deeply sulcate with sharp lateral carinae, gradually diverging downwards. Pronotum elongated, dorsum flat or slightly tectiform, medium and lateral carinae well developed, lateral slightly divergent in metazona; only posterior sulcus crossing dorsum; metazona much shorter than prozona, its posterior margin rounded or obtusangular. Prosternal process acutely conical or pyramidal, short with broad basal part. Mesosternal interspace open, narrow. Elytra and wing fully developed, narrow, venation and reticulation of elytra sparse, membrane transparent; intercalary vein of medial area present. Hind femur narrow; internal upper lobe of hind knee longer than external one, with angular apex; lower lobes of equal length. Arolium large. Male supra-anal plate elongate angular, with acute apex. Cercus slightly compressed, with obtuse and slightly incurved apex. Subgenital plate short, obtusely conical. Valves of ovipositor robust, with curved apices.

Type species: *Gelastorhinus albolineatus* Brunner, 1893.

The species of this genus are distributed in the Oriental and Ethiopian zoogeographical regions. Only one species occurs in Madagascar.

Gelastorhinus edax Saussure, 1899

(Text-figs. 5, 10)

♂. Antenna 21–22 segmented, narrow ensiform. Fastigium of vertex above concave, with median carinula. Lateral carinae of pronotum almost parallel; dorsum slightly tectiform; posterior margin of metazona rounded. Prosternal process low pyramidal. Mesosternal interspace elongated, narrow, widening at anterior part. Elytron narrow, with subacute apex. Cercus long, almost straight, exceeds end of subgenital plate, compressed, narrow, with obtuse apex.

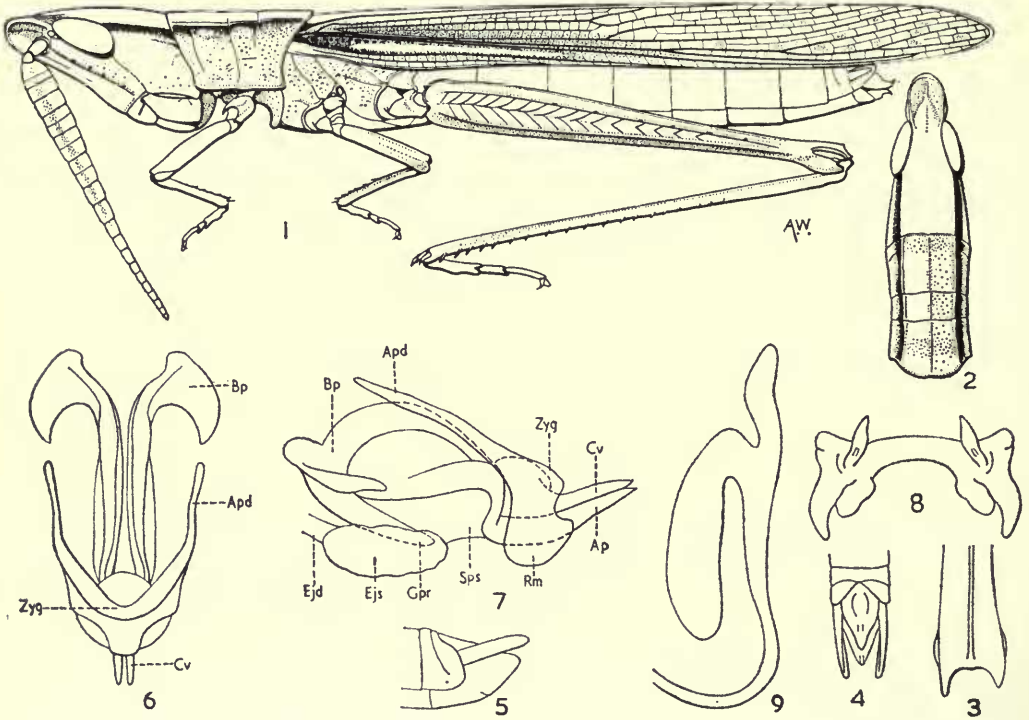


FIG. 5. *Gelastorhinus edax* Saussure, 1899. 1, female. 2, head and pronotum. 3, distal end of right hind femur, from above. 4, end of male abdomen, from above. 5, the same, lateral view. 6, phallic complex from above, ectophallic membrane and epiphallus removed. 7, the same, lateral view. 8, epiphallus. 9, spermatheca.

Phallic complex: zygoma of cingulum short; apodemus short and narrow; valve of cingulum straight, narrow, with subacute apex, basal valve of penis with strongly excurved, large, lateral expansion; apical valve of penis narrow, almost straight with acute apex; flexure moderately thin. Epiphallus with articulated ancorae and lobiform, with tendency to bilobate, lophi.

General colouration greenish or ochraceous, with lateral stripe which begins from posterior margin of eye, runs along lateral lobe of pronotum, below lateral carina and through middle of elytron, gradually diffusing towards middle.

♀. As the male, but larger. Subgenital plate shallowly trilobate. Ovipositor short with valves acute at apices. Spermatheca with narrow apical diverticulum and long, narrow, downcurved preapical diverticulum.

Length of body ♂ 23.2-24, ♀ 38.3-41.5; pronotum ♂ 3.9-4.0, ♀ 6.5-7.5; elytron ♂ 19.2-20.6, ♀ 31.0-34.0; hind femur ♂ 14.5-15.0, ♀ 19.5-21.0 mm.

Madagascar Nord : Joffreville, 15.xii.1947, 2 ♀ (*P. Cachan*).

Madagascar Ouest : Andobo, 190 m. forêt Antsingy, det. Antsalova, ii.1957, 1 ♂, 1 ♀ (*P. Griveaud*).

Madagascar Centre : Ambatofinandrahana, 1180 m. 28.vii.1957, 1 ♀ (*P. Griveaud*).
Tananarive, Tsimbazaza, 18.ii.1949, 1 ♀, 23.i.1948, 1 ♀. Ambohitantely, Lisière forestière, 4.ii.1948, 2 ♂ (*P. Cachan*).

DURONIA Stål, 1876

Rodunia I. Bolivar, 1908 : 100; Rehn, 1914 : 77.

Of medium size. Integument finely rugose. Antenna ensiform, slightly shorter than head and pronotum together. Head conical; fastigium of vertex parabolic, with fine median and short lateral carinulae, fastigial foveolae absent; frons strongly oblique, straight; frontal ridge sulcate on whole length, with high, short, downwardly diverging, lateral carinulae. Dorsum of pronotum flat, wide, with sharp, strong carinae; lateral carinae straight, almost parallel or slightly diverging backwards; only posterior sulcus crossing dorsum; metazona slightly shorter than prozona, its posterior margin obtusangular. Mesosternal interspace open. Elytra and wings fully developed; membrane of elytron semi-transparent, reticulation moderately dense. Hind femur slender reaching or slightly exceeding end of abdomen; lobes of hind knee of equal length, upper ones with rounded apices, lower external angular, internal acutangular. Arolium large. Male supra-anal plate elongate angular. Cercus elongate conical, with obtuse apex. Subgenital plate short, conical, with acute apex. Ovipositor short, valves robust, wide, curved at apices.

Type species : *Phlaeoba chloronota* Stål, 1876.

Duronium chloronota (Stål, 1876)

(Text-fig. 10)

Phlaeoba chloronota Stål, 1876 : 48.

Phlaeoba viridula var. *liturata* I. Bolivar, 1889 : 98; Dirsh, 1962 : 86.

Phlaeoba laeta I. Bolivar, 1890 : 310. **syn. n.**

Phlaeoba iricolor Karny, 1907 : 368; Dirsh, 1962 : 86.

Rodunia acuminata I. Bolivar, 1912 : 78; Dirsh, 1962 : 86.

Duronium victoriana Rehn, 1914 : 77; Dirsh, 1962 : 86.

♂. Antenna 18-20 segmented. Facial carinae sharp, regularly excurved. Lateral carinae of pronotum straight, almost parallel, or slightly divergent, or slightly excurved; lower margin of lateral lobe curved. Prosternum with weak transverse convexity. Mesosternal interspace about twice as long as its width, with slightly incurved lateral margins. Elytron exceeds end of abdomen, with oblique apex; intercalary vein of medial area absent or very weak. Hind wing narrow. Hind femur narrow, slender, exceeds end of abdomen.

General colouration brown, greyish, buff, straw-yellow, greenish, green; dorsal part of body and elytra often green or lighter shade of brownish than lateral parts; sometimes there is dark brown stripe along lateral lobe of pronotum, below lateral carina, which runs along elytron as well; sometimes median and lateral carinae of pronotum dark brown. Wing colourless or slightly greenish at basal part.

♀. As the male, but larger. Posterior margin of subgenital plate shallowly trilobate.

Length of body ♂ 22.0-30.0, ♀ 28.0-44.0; pronotum ♂ 3.6-5.0, ♀ 5.5-7.0; elytron ♂ 16.4-23.0, ♀ 19.0-35.0; hind femur ♂ 13.0-16.0, ♀ 17.6-24.0 mm.

The Madagascar specimens of this species which were described as *Duronium laeta* (I. Bolivar) have no differences, except the individual ones, from the African specimens of *Duronium chloronota* (Stål). All Madagascar specimens fit very well into African series and cannot be distinguished even as a geographical race. They have the same range of variability of the characters as the continental series (Dirsh 1962).

Madagascar Nord : Joffreville, 15. xii. 1947, 1 ♀.

Madagascar Centre : Ankadimanga, Manjakandriana, xii. 1957, 1 ♀ (*J. Elie*). Ambohitantely, Lisière de forêt, 4. ii. 1948, 1 ♂ (*P. Cachan*). Tananarive, Tsimbazaza, 23. i. 1948, 3 ♀. Soavina, Sud-Ouest d'Ambositra, i. 1951, 1 ♀ (*R. Paulian*). Marololo, 1. xii. 1947, 1 ♀ (*J. Doucset*). Dct. Majunga, forêt Ankàrafantsika, 120 m., xii. 1950, 1 ♀ (*E. Raharizonina*).

PARALOBOPOMA Rehn, 1914

Paralobopoma Rehn, 1914 : 73.

Sagonacris Ramme, 1929 : 263 ; Ramme, 1931 : 918.

Small. Integument slightly rugose, shiny. Antenna narrow ensiform, longer than head and pronotum together. Head acutely conical ; fastigium of vertex elongate angular, with obtuse apex, concave, with median carinula ; frons slightly incurved ; frontal ridge slightly, roundly protruding between antennae, shallowly sulcate, with obtuse carinulae. Pronotum subcylindrical ; median carina distinct ; lateral carinae parallel in prozona and mostly obliterated in metazona ; one sulcus crossing dorsum ; metazona much shorter than prozona, its posterior margin obtusangularly incurved. Mesosternal interspace open. Elytra narrow elongated, lobiform, lateral, partly covering tympanum. Hind femur slender ; lobes of hind knee of equal length. Arolium moderately large. Male supra-anal plate elongate angular ; cercus narrow conical, with subacute apex. Subgenital plate in profile subconical, from posterior view apex obtuse. Valves of ovipositor moderately slender, with curved apices.

Type species : *Paralobopoma bugoiensis* Rehn, 1914.

Paralobopoma tananarive sp. n.

(Text-fig. 6)

♂ type. Antenna about twice as long as head and pronotum together, 19 segmented. Lateral carinulae of frontal ridge obtuse ; facial carinae almost obliterated. Median carina of pronotum low, obtuse, with longitudinal suture ; lateral carinae weak ; metazona one third of length of prozona, its posterior margin obtusangularly excised, lateral edges excurved ; lower margin of lateral lobes, in anterior half, strongly excised. Mesosternal interspace short, wide, widening in frontal direction. Elytron very narrow, partly covering tympanum and reaching second abdominal tergite. Hind femur long, far exceeds end of abdomen ; spines of hind tibia gradually becoming longer towards distal end.

Phallic complex : zygoma of cingulum moderately short ; apodemus long ; valve of cingulum long, slightly curved, from above with obtuse apex ; basal valve of penis large, strongly expanded and excurved ; apical valve of penis narrow, curved, with acute apex ; flexure thin. Epiphallus with articulated ancorae and shallowly bilobate lophi.

General colouration blackish-olive-green ; along whole body above, from apex of fastigium of vertex to supra-anal plate there is bright yellow stripe ; middle of face blackish-green ; bright yellow stripe running from antenna to clypeus, at basal part connected with yellow lower part of gena ; sides of body blackish-green ; legs olive green ; hind tibia dark bluish-green, at apical part with pinkish tinge.

♀. As the male, but larger. Lateral carinae of pronotum sometimes developed in metazona as well. Ovipositor elongated, with straight, slender valves, slightly curved at apices. There is no yellow pattern on whole body and face; general colouration olive green or brownish. Spermatheca with short apical and large, downcurved, sac-like preapical diverticula.

Length of body ♂ 13.5–15.0, ♀ 20.6–22.4; pronotum (along median carina) ♂ 2.6–2.8, ♀ 3.4–3.5; elytron ♂ 2.5–2.6, ♀ 3.0–3.3; hind femur ♂ 10.6–11.0, ♀ 13.0–13.5 mm.

Madagascar Centre: Tananarive, ii–iii. 1950, 16 ♂, 12 ♀.

Type and paratypes in California Academy of Sciences. 3 ♂, 3 ♀ paratypes in the British Museum (Natural History).

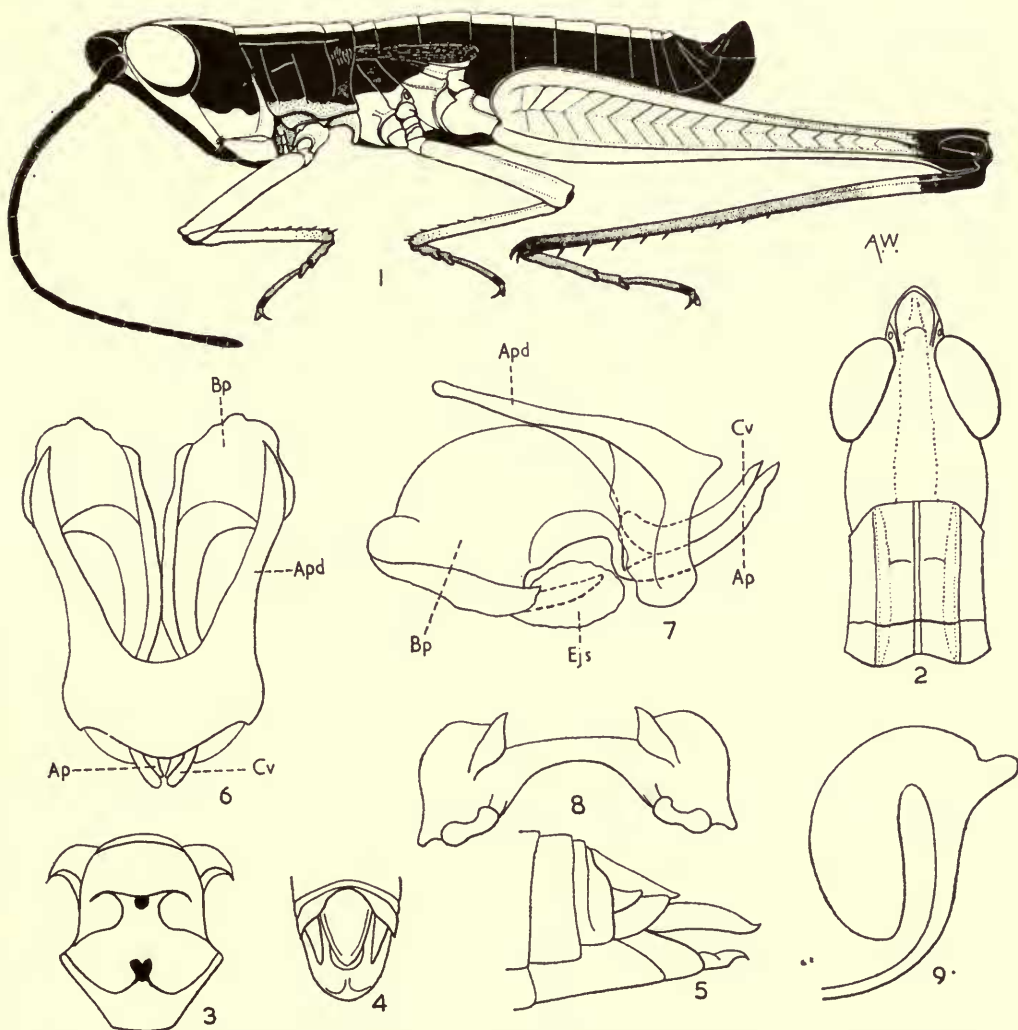


FIG. 6. *Parabolopoma tananarive* sp. n. 1, male. 2, head and pronotum. 3, meso- and metasternum. 4, end of abdomen, male. 5, end of abdomen, female. 6, phallic complex from above, ectophallic membrane and epiphallus removed. 7, the same, lateral view. 8, epiphallus. 9, spermatheca.

The new species varies in coloration. Males in the whole series preserve the same pattern and coloration; females vary from olive-green, light brown, to dark brown; some of them with blackish lateral stripe which begins from the eye and runs through whole side of body, some of them without stripe, uniformly coloured.

The new species is rather near to *Paralobopoma bugoiensis* Rehn, 1914, but differs by the following characters:

Male more slender, with longer antenna and more elongated hind femur; posterior margin of metazona of pronotum more excised; elytron comparatively longer and narrower. Female differs by more slender body and by elongated, slender ovipositor, with narrow, straight valves. Structure of the phallic complex is rather similar in both species.

GYMNOBOTHRUS I. Bolivar, 1889

Gymnbothrus I. Bolivar 1889: 100.

Ogmothela Karsch, 1896: 260; Uvarov, 1953: 119.

Pseudochirista I. Bolivar, 1909: 291; Uvarov, 1953: 119.

Orthochirista Sjöstedt, 1933: 215; Uvarov, 1953: 119.

Small. Integument finely rugose. Antenna filiform, slightly shorter or longer than head and pronotum together. Head subconical; fastigium of vertex angular, concave, with lateral carinulae and obtuse apex; fastigial foveolae low, not seen from above, narrow, shallow and rugose; frons oblique, slightly excurved; frontal ridge almost flat or sulcate, with obtuse or obliterated lateral carinulae, gradually diverging downwards. Pronotum slightly constricted; median carina strong; lateral carinae well developed, strongly or slightly incurved; three sulci crossing dorsum, only posterior one crossing median carina; metazona as long as or slightly longer than prozona, its posterior margin obtusangular. Mesosternal interspace open. Elytra and wings fully developed or shortened; membrane of elytron semi-transparent, reticulation moderately dense; intercalary vein of medial area present. Hind femur slender; lobes of hind knee of equal length, with rounded apices. Arolium moderately large. Male supra-anal plate elongate angular. Cercus narrow conical, straight, with obtuse apex. Subgenital plate short conical, with obtuse apex. Ovipositor short, moderately robust, with curved valves, lower valve with rounded external lateral projection.

Type species: *Gymnbothrus linea-alba* I. Bolivar, 1889.

KEY TO SPECIES

- 1 (2) Lateral carinae of pronotum in prozona angularly incurved, in metazona divergent (Fig. 7) **madacassus** Bruner
- 2 (1) Lateral carinae of pronotum in prozona slightly, regularly incurved, in metazona excurved and divergent (Fig. 8) **variabilis** Bruner

Gymnbothrus madacassus Bruner, 1910

(Text-figs. 7, 10)

♂. Antenna shorter than head and pronotum together, 22-23 segmented. Fastigium of vertex concave, with obtuse apex; frontal ridge shallowly sulcate. Lateral carinae of pronotum angularly incurved in prozona and divergent in metazona; metazona longer than prozona; lateral lobe of pronotum higher than its length, its lower margin strongly curved. Mesosternal interspace wider than its length. Elytron narrow, far exceeds end of abdomen, with rounded apex. Hind wings moderately narrow. Hind femur far exceeds end of abdomen.

Phallic complex : zygoma of cingulum short and wide ; apodemus moderately short ; valve of cingulum narrow, comparatively long ; basal valve of penis with expanded and excurved end ; apical valve of penis narrow, with acute apex ; flexure moderately thin. Epiphallus with comparatively large, articulated ancorae, lophi finger-shaped, with hook-shaped apices.

General colouration brownish ; dorsum of pronotum with wide, lateral, longitudinal stripes, but lateral carinae light ochraceous ; lateral lobe of pronotum, in middle, with brown stripe, diffusing in anterior part, and below it with ochraceous, oblique stripe ; lower side of hind femur orange-red ; hind wing colourless.

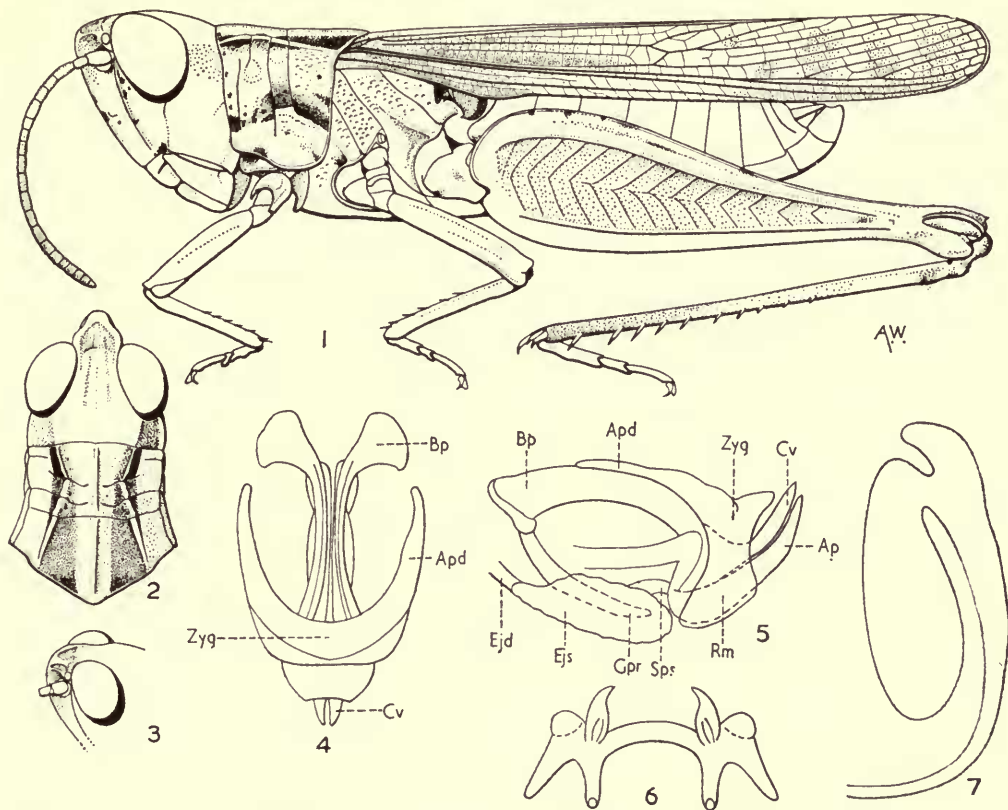


FIG. 7. *Gymnbothrus madacassus* Bruner, 1910. 1, male. 2, head and pronotum, from above. 3, fastigium of vertex, tilted sideways to show fastigial foveola. 4, phallic complex from above, ectophallic membrane and epiphallus removed. 5, the same, lateral view. 6, epiphallus. 7, spermatheca.

♀. As the male, but larger. Antenna 23–25 segmented. Posterior margin of subgenital plate straight, with acutangular projection in middle. Spermatheca with short, curved apical diverticulum and large, downcurved, sac-like preapical diverticulum.

Length of body ♂ 14.0–14.8, ♀ 21.0–21.5 ; pronotum ♂ 2.7–3.2, ♀ 4.0–4.2 ; elytron ♂ 11.5–13.6, ♀ 16.0–18.0 ; hind femur 9.0–10.6, ♀ 12.4–12.6 mm.

This species is very near to *Gymnbothrus temporalis* (Stål, 1876). Possibly it represents only a geographical race.

When describing this species Bruner did not designate a specific type. Here his male from Tamatave in the Berlin Museum is designated as the type.

Madagascar Centre : Tananarive, Tsimbazaza, 17.vii.1947, 2 ♂, 2 ♀.

Madagascar Est : Ranomafana, Ifanadiana, 1 ♂. Perinet, 1 ♀.

Madagascar Sud : Fort Dauphin, 2 ♂ (*R. Paulian*).

Gymnobothrus variabilis Bruner, 1910

(Text-figs. 8, 10)

♂. Antenna about as long as head and pronotum together, 23-24 segmented. Fastigium of vertex strongly concave with angular, obtuse apex; frontal ridge with shallow sulcus. Lateral carinae of pronotum slightly, regularly incurved in prozona, excurved and divergent in metazona; metazona longer than prozona; lateral lobe of pronotum higher than its length; its lower margin curved. Mesosternal interspace wider than its length. Elytron narrow, far exceeds end of abdomen, its apex rounded. Hind wing moderately narrow.

Phallic complex : zygoma of cingulum short and wide; apodemus short, slender; valve of cingulum narrow; basal valve of penis expanded and strongly excurved; apical valve of penis comparatively long, narrow, slightly curved, with acute apex; flexure comparatively thick. Epiphallus with articulated ancorae; lophi finger-shaped with hooks at apex.

General colouration brownish; head and dorsum of pronotum sometimes with yellowish median, longitudinal stripe; posterior angle of lateral lobe of pronotum often with short ochraceous stripe; subcostal area with whitish longitudinal stripe; hind wing colourless; lower side of hind femur ochraceous, sometimes orange-reddish; hind tibia dirty ochraceous, at basal part with paler ring.

♀. As the male, but larger. Antenna 24-25 segmented. Posterior margin of subgenital plate straight, with small, angular, median projection. Spermatheca with short, curved apical diverticulum and large, downcurved, sac-like preapical diverticulum.

Length of body ♂ 13.2-16.3, ♀ 20.0-23.2; pronotum ♂ 2.6-3.2, ♀ 4.0-4.2; elytron ♂ 11.8-16.0, ♀ 15.5-18.6; hind femur ♂ 8.3-10.6, ♀ 11.9-14.0 mm.

This species is very near to the African species *Gymnobothrus linea-alba* I. Bolivar, 1889. It differs only by more incurved lateral carinae of pronotum, which in *G. linea-alba* are incurved only slightly. Possibly they are races of the same species.

Describing this species on the basis of both sexes Bruner did not designate a type. Here the male in the Berlin Museum is designated as specific type.

Madagascar Nord : dct. Diego Suarez, Mont. des Français, ii.1947, 1 ♂, 2 ♀ (*A. Robinson*).

Madagascar Nord-Ouest : dct. Majunga, forêt Ankarafantsika, 120 m. xii.1959, 3 ♂. Nosy Be, Hellville, 5.ix.1947, 1 ♂, 3 ♀. Nosy Mitsio, 13.i.1960, 4 ♂, 3 ♀ (*R. Paulian*).

Madagascar Nord-Est : Ambodivoangy, Maroantsetra, 2 ♂, 2 ♀. Ampijoroa, 170 m. Ankarafantsika, i.1957, 1 ♂ (*E. Raharizonina*).

Madagascar Ouest : Andobo, 190 m. forêt Antsingy, dct. Antsalova, ii.1957, 3 ♂, 1 ♀ (*P. Griveaud*).

Madagascar Centre : Ankadimanga, Manjakandriana, xii.1957, 2 ♂, 2 ♀ (*J. Elie*). La Mandraka, 22.i.1948, 2 ♂, 1 ♀ (*R. Paulian*). Tananarive, Tsimbazaza, 17.vii.1947, 5 ♂, 10 ♀ (*P. Cachan*). Soavina, Sud-Ouest d'Ambositra, i.1951, 1 ♀ (*R. Paulian*).

Madagascar Est : Pce. de Tamatave, Fénériver-Est Station forestière de Taratasy, vii.1958, 1 ♂, 1 ♀ (*J. Elie*). Pce. de Tamatave, Ambodiatafana, vi.1958, 4 ♂, 4 ♀ (*Razamanfidimby*). Ile Sainte-Marie, Ambatoroa, vi.1959, 2 ♀ (*E. Razafimandimby*). Station Agric. de Brickaville, 3 ♀. Tamatave, Ile Sainte-Marie, Ilot Madame, xi.1958, 1 ♂, 1 ♀ (*J. Elie*). Station Agric. Ivoloina, xi.1958, 1 ♀ (*J. Elie*). Mahanoro, 1 ♀ (*A. Molet*). Ranomafana, Ifanadiana, 1 ♂, 1 ♀. Perinet, 3 ♂, 2 ♀. Ankazoka, 1130 m. Route Lakato, x.1957, 1 ♀ (*P. Griveaud*).

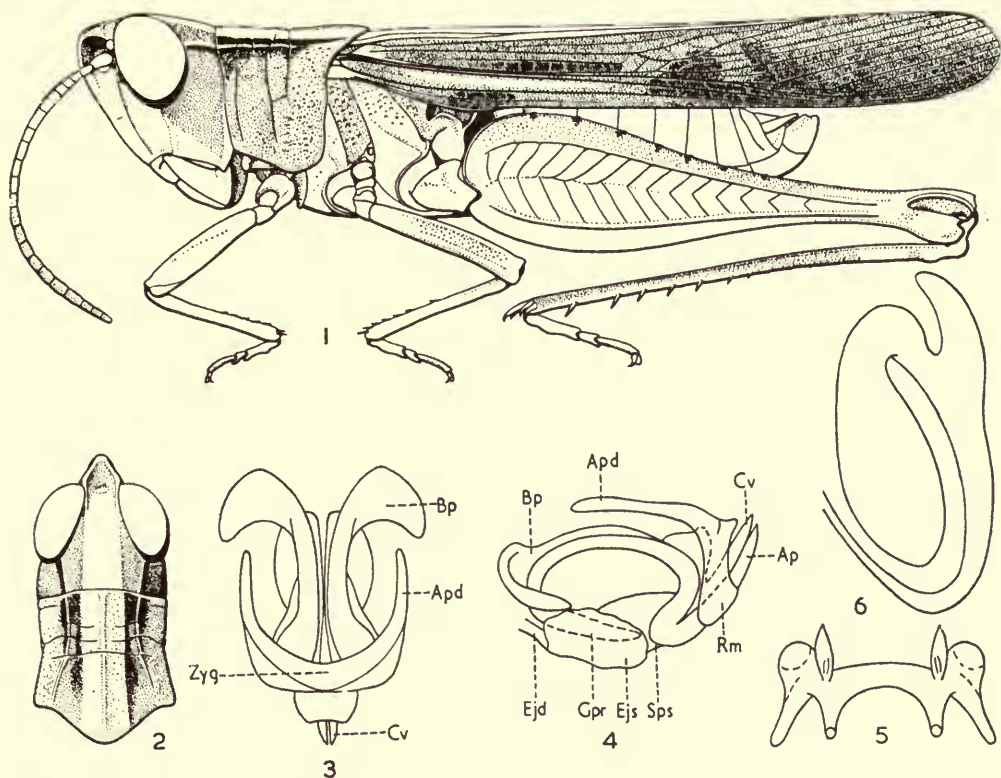


FIG. 8. *Gymnobothrus variabilis* Bruner, 1910. 1, male. 2, head and pronotum from above. 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, epiphallus. 6, spermatheca.

Madagascar Sud-Ouest : Sept Lacs, 50 m. Tuléar, vii.1957, 2 ♂ (*A. Robinson*). Banian, 70 m. Ankaabo, vii.1957, 3 ♂ (*A. Robinson*). Lambomakandro, 500 m. Tuléar, vii.1957, 1 ♂ (*A. Robinson*). Beloha, 100 m. Ambovombe, vi.1957, 1 ♀ (*A. Robinson*).

Madagascar Sud-Est : Tsivory, 16.viii.1948, 1 ♂ (*R. Paulian*).

Madagascar Sud : Fort Dauphin, 14 ♂, 6 ♀ (*R. Paulian*). Dct. Amboasary, Ifotaka, iii.1960, 1 ♀ (*R. Paulian*).

PARACINEMA Fischer, 1853

Of medium size, moderately slender. Antenna filiform, longer than head and pronotum together. Fastigium of vertex elongate angular, slightly concave, almost flat, with obtuse, well developed lateral carinulae, fastigial foveolae absent; frons oblique, straight; frontal ridge sulcate, with obtuse lateral carinulae, constricted at apex and forming acute angle with fastigium of vertex. Pronotum weakly tectiform, almost flat, with obtuse median carina; crossed by posterior sulcus; lateral carinae poorly developed, slightly incurved, almost straight; metazona slightly longer than prozona, its posterior margin obtusangular with apex slightly excised. Mesosternal interspace longer than its width. Elytra and wings fully developed; intercalary vein of medial area of elytron well developed and finely serrated; membrane transparent, with moderately sparse reticulation. Hind femur slender; lower lobes of hind knee acutely angular; hind tibia slightly expanded towards apex; spurs not specialized. Arolium large. Male suprananal plate elongate, with slightly attenuate, rounded apex and curved sides. Cercus subconical, narrow, with obtuse apex. Subgenital plate narrow conical. Ovipositor relatively long, slender, with curved valves; upper valve with serrated upper external margin; lower valve with angular, external lateral projection.

Type species: *Gryllus tricolor* Thunberg, 1815.

Paracinema tricolor (Thunberg, 1815)

(Text-fig. 14)

Gryllus tricolor Thunberg, 1815: 254.

Paracinema tricolor madecassa Key, 1936: 391. Syn. n.

♂. Antenna 25 segmented. Fastigium of vertex above shallow concave; vertex convex; lateral carinulae of frontal ridge slightly diverging downwards. First and second transverse sulci of pronotum reaching dorsum, but do not cross median carina; lateral lobe slightly longer than its height, with lower margin curved and shallowly excised in anterior half. Elytron slightly or far exceeds end of abdomen, oblique at apex. Hind wing narrow. Hind femur exceeds end of abdomen.

General colouration green or brown with all intermediate shades; lateral margins of dorsum of pronotum with brown, parallel stripes; cubital area of elytron sometimes with brownish longitudinal stripe; base of hind wing slightly greenish; hind knee brown; hind tibia bright red.

♀. As the male, but larger. Antenna 23-25 segmented. Apex of subgenital plate rounded and strongly protruding.

Length of body ♂ 17.7-26.9, ♀ 31.5-39.0; pronotum ♂ 3.7-5.0, ♀ 5.5-7.4; elytron ♂ 16.2-24.5, ♀ 25.6-35.0 mm. (The measurements are based on Madagascar material only.)

Madagascar Nord: Mt. d'Ambre, Diégo Suarez, xii. 1948, 3 ♂, 11 ♀. (*R. Paulian*); ix. 1957, 1 ♂ (*J. Elie*). Diégo Suarez, Mt. des Français, ii. 1959, 1 ♂ (*A. Robinson*). Ambilobe, iv. 1951, 1 ♂, 1 ♀ (*R. Paulian*). Joffreville, 15. xii. 1947, 1 ♀ (*P. Cachan*).

Madagascar Nord-Ouest: Ambanja, iii. 1951, 1 ♂ (*R. Paulian*). Namoroka, ix. 1952, 1 ♀ (*R. Paulian*). Nosy Be, Pointe à la Fièvre, vii. 1957, 1 ♀ (*R. Paulian*). Dct. Majunga, forêt Ankarafantsika, 120 m. xii. 1959, 4 ♀ (*E. Raharizonina*).

Madagascar Nord-Est: Dct. Sambava, Marojejy, Ambinanitelo, 500 m. xii. 1958, 1 ♂, 1 ♀ (*E. Raharizonina*). Ivontaka, dct. Maroanisetra, iii. 1958 1 ♀.

Madagascar Ouest: Morondava, forêt sud de Befasy, i. 1956, 2 ♀ (*R. Paulian*). Namoroka, Vilanandro, ix. 1952, 1 ♀. Andobo, 190 m. forêt Antsingy, dct. Antsalova, ii. 1957, 1 ♂, 3 ♀ (*P. Griveaud*).

Madagascar Centre : Dct. Moramanga, Sandrangato, xii.1959, 1 ♀ (*P. Griveaud*).
 Ankadimanga, Manjakandriana, xii.1958, 1 ♂, 1 ♀ (*J. Elie*). Plateau Soaindran,
 2090 m. Andrigitra-Ambalavao, 15.i.1958, 1 ♀ (*R. Paulian*). Forêt Vakoana,

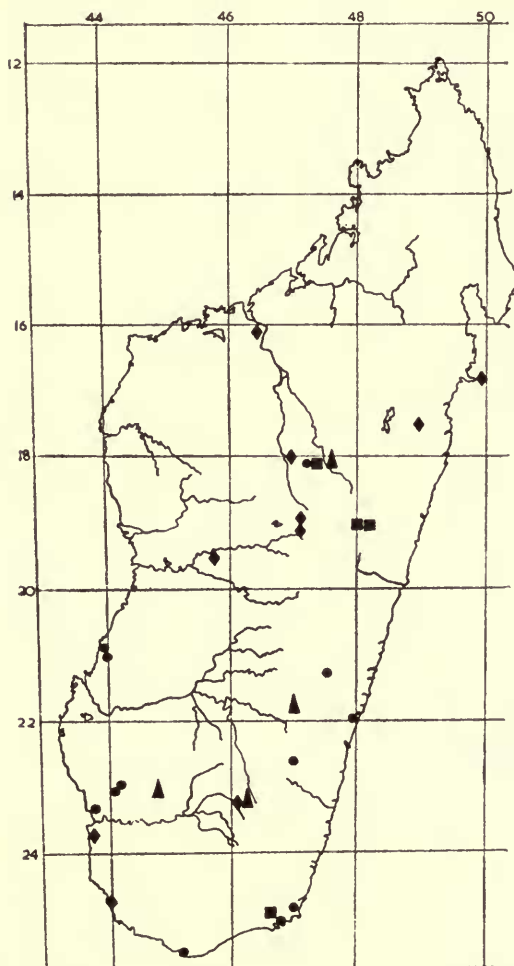


FIG. 9. Geographical distribution.

- ◆—*Acrida madecassa* (Brancsik, 1893).
- ▲—*Acrida subtilis* Burr, 1902.
- Chromacrida rodamae* (Saussure, 1899).
- Chromacrida brunneriana* (I. Bolivar, 1893).

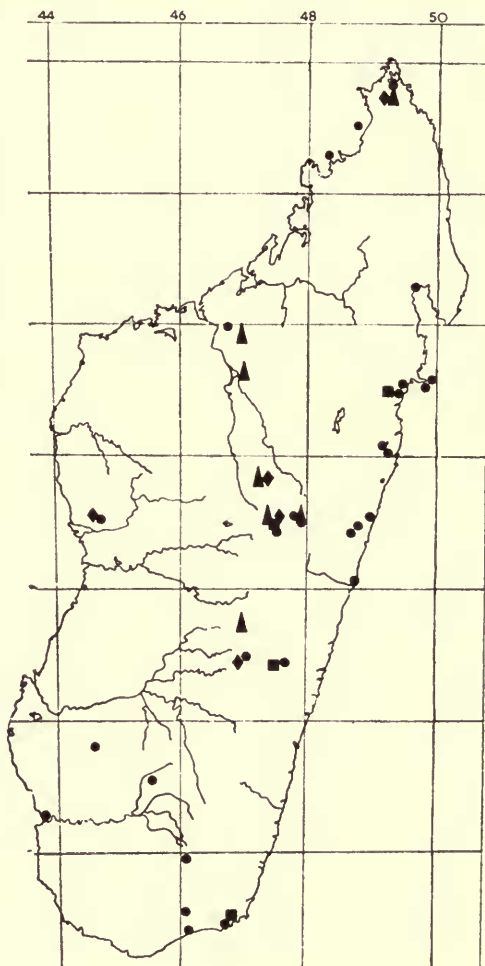


FIG. 10. Geographical distribution.

- ◆—*Gelastorhinus edax* Saussure, 1899.
- ▲—*Duronia chloronota* (Stål, 1876).
- Gymnobothrus madecassus* Bruner, 1910.
- Gymnobothrus variabilis* Bruner, 1910.

Ambalamarovandrana, 1530 m. Andrigitra–Ambalavao, 22.i.1958, 1 ♂, 2 ♀ (*P. Griveaud*). Ampijoroï, Tsaramandroso, 2 ♀. Ambohiby, 1500 m. Tsiroanomandidy, 25.v.1948, 1 ♀. Tananarive, Tsimbazaza, 19.i.1948, 7 ♀ (*A. R. V.*).

Madagascar Est : Nosivola, 3 ♀. Station Agricole Brickaville, 3 ♂. Perinet, 1 ♂, 6 ♀. Ranomafana, Ifanadiana, 1 ♀. Andranomandrevy, Didy, 1039 m. Ambatondrazaka, x.1956, 2 ♀ (*P. Griveaud*).

Madagascar Sud-Ouest : Dct. Tuléar, Isalo, 1000 m. xii.1959, 1 ♀ (*E. Raharizonina*). Sept–Lacs, 100 m. Tuléar, 14.ii.1958, 2 ♂, 3 ♀ (*P. Griveaud*). St. Augustin, 8 m. Tuléar, 11.ii.1958, 1 ♀ (*P. Griveaud*).

Madagascar Sud-Est : Sakavondro, 225 m. forêt Isaka, Fort Dauphin, 24.ii.1958, 1 ♀ (*P. Griveaud*).

When studying series of *Paracinema tricolor* from Madagascar, it became apparent that they cannot be considered as a separate subspecies. They fit into the series of continental *Paracinema*, disregarding all the subspecies of this species.

Most probably *Paracinema tricolor* forms ecological races, which are not connected with geographical distribution and may occur in any place with suitable ecological conditions.

Paracinema tricolor is widely distributed in Africa, Arabia, South Europe, Asia Minor and the Middle East.

AILOPUS Fieber, 1853

Epacromia Fischer 1853 : 296 ; Uvarov, 1942 : 336.

Of medium size. Integument finely dotted. Antenna filiform, as long as or longer than head and pronotum together. Fastigium of vertex elongate, angular, slightly concave, with well developed lateral carinulae ; fastigial foveolae trapezoidal, shallow ; frons oblique ; frontal ridge flat, slightly narrowed at apex, without lateral carinulae. Pronotum very slightly tectiform and slightly constricted in prozona ; median carina obtuse, linear, lateral carinae absent. Dorsum crossed by posterior sulcus only ; metazona longer than prozona, its posterior margin obtus-angular, with rounded or obtuse apex. Mesosternal interspace slightly wider than its length. Elytra and wings fully developed ; intercalary vein of medial area of elytron well developed and finely serrated ; membrane transparent, reticulation moderately sparse. Hind femur comparatively slender ; lobes of hind knee rounded. Arolium of medium size. Male supra-anal plate elongate angular. Cercus narrow conical, with obtuse apex. Subgenital plate short, subconical, with obtuse apex. Ovipositor short, with moderately robust valves, curved at apices.

Type-species : *Gryllus thalassinus* Fabricius, 1781.

Aiolopus rodericensis (Butler, 1876)

(Text-figs. II, 14)

Epacromia rodericensis Butler, 1876 : 410 ; Uvarov, 1928 : 364.

Epacromia famulus (sic) var. *pusilla* I. Bolivar, 1895 : 378 ; I. Bolivar, 1912 : 270.

Aeolopus perpusillus (nom. n.) I. Bolivar, 1912 : 270. **Syn. n.**

Aeolopus laticosta I. Bolivar, 1912 : 268. **Syn. n.**

Aeolopus aldabrensis I. Bolivar, 1912 : 269. **Syn. n.**

Aeolopus docioस्ताuroides I. Bolivar, 1912 : 269. **Syn. n.**

Aeolopus fasciatus I. Bolivar, 1912 : 270. **Syn. n.**

♂. Antenna as long as head and pronotum together, 22–24 segmented. Fastigium of vertex narrow angular; fastigial foveolae elongated, irregularly trapezoidal, narrowing towards frontal ridge, very shallow; frontal ridge flat or slightly depressed at ocellus. Posterior margin of metazona of pronotum obtusangular, almost rounded; lower margin of lateral lobe of pronotum in anterior half shallowly excised. Elytron far or only slightly exceeds end of abdomen, its apex rounded; intercalary vein of medial area of elytron, in apical end turned towards medial vein. Hind wing moderately narrow. Hind femur comparatively wide. Hind tibia shorter than femur.

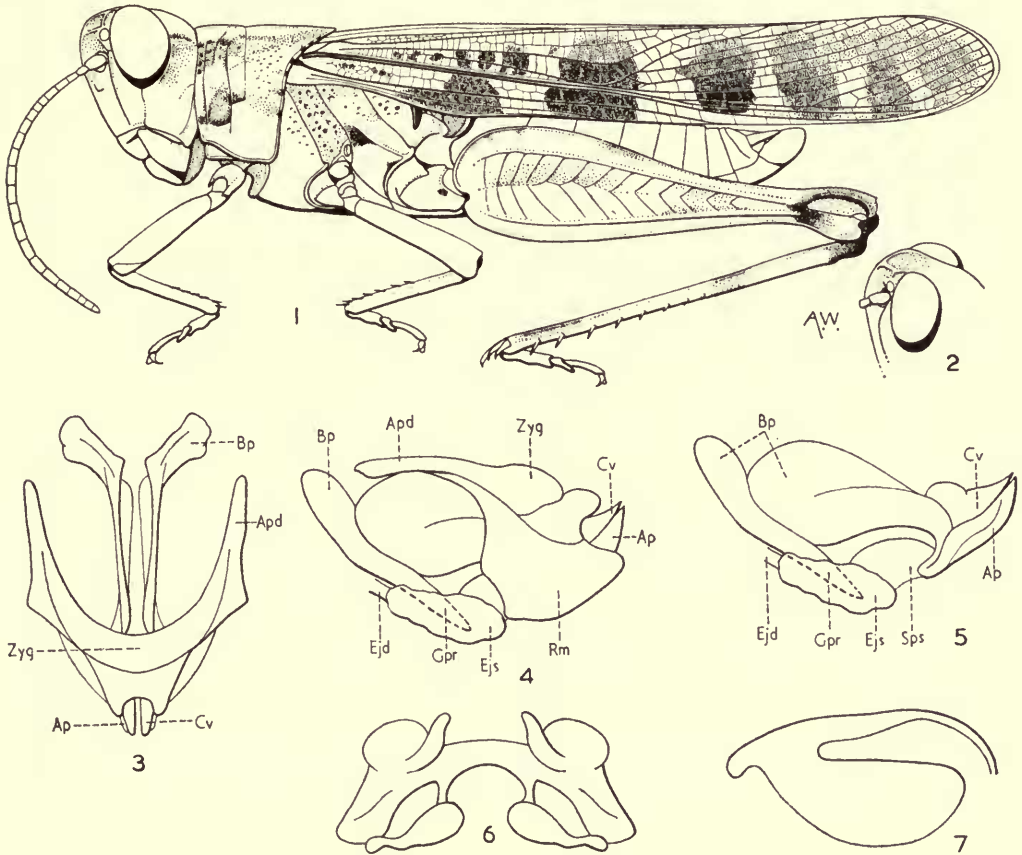


FIG. 11. *Aiolopus rodericensis* (Butler, 1876). 1, male. 2, fastigium of vertex, tilted side-wards to show fastigial foveola. 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves, removed. 6, epiphallus. 7, spermatheca.

Phallic complex: zygoma of cingulum narrow; apodemus moderately short, forming lateral, angular projection, valve of cingulum short, robust, with acute apex; basal valve of penis ex-curved and moderately expanded; apical valve of penis short, thick, with acute apex; flexure moderately thin. Epiphallus with narrow, articulated ancorae and large, lobiform lophi of irregular form.

General colouration brownish or greenish, dorsum of pronotum sometimes with light X-shaped pattern; lateral lobe of pronotum in anterior half with brownish spot; elytron with two or

three transverse light fasciae and sometimes with small light irregular spots, sometimes uniformly brownish; hind wing colourless or slightly greenish at basal part; external side of hind femur with three indefinite, elongated, brownish spots, which sometimes are obliterated; internal side pale ochraceous, with incomplete, blackish, basal, transverse fascia and complete preapical fascia; internal side of hind knee blackish; base of hind tibia creamy-whitish, followed by narrow blackish ring, then wide whitish ring followed by slightly blackish ring and blue or bluish at distal part; spines with blackish apices; hind tarsus of pinkish shade.

♀. As the male, but larger. Antenna 24–25 segmented. Subgenital plate weakly trilobate, with obtusangular apex. Spermatheca with small, short apical diverticulum and large, down-curved, sac-like preapical diverticulum.

Length of body ♂ 17.0–22.0, ♀ 21.0–29.2; pronotum ♂ 2.8–4.3, ♀ 4.0–5.5; elytron ♂ 14.0–21.0, ♀ 19.0–26.7; hind femur ♂ 8.5–12.5, ♀ 12.0–15.8 mm.

Madagascar Nord-Ouest: Nosy Mitsio, 14.i.1960, 1 ♂ (*R. Paulian*). Ampijoroa, 170 m. Ankarafantsika, i.1957, 1 ♀. Ampijoro, Tsaramandroso, 2 ♂, 1 ♀.

Madagascar Ouest: Morondava, forêt sud de Befasy, i.1956, 4 ♂, 6 ♀ (*R. Paulian*). Vilandro, Namoroka, ix.1952, 1 ♀ (*R. Paulian*). Antsingy, 63 km. Est Maintirano forêt, vii.1949, 1 ♀ (*R. Paulian*).

Madagascar Centre: Tananarive, 2 ♂, 3 ♀.

Madagascar Est: Fianarantsoa, xi.1957, 3 ♂, 4 ♀ (*J. Elie*). Ankadimanga, Manjakandriana, xii.1957, 2 ♀ (*J. Elie*).

Madagascar Sud-Ouest: Lac Ihotry, 40 m. Morombe, 8.vii.1957, 1 ♂, 3 ♀. Sept Lacs, 50 m. Tuléar, ii–vii.1958, 3 ♂, 7 ♀ (*P. Griveaud*). Lac Tsimananpetsotsa, Andranomby, 20.iv.1948, 1 ♀. Lambomakandro, 500 m. Tuléar, vii.1957, 1 ♂ (*A. Robinson*).

Madagascar Sud: St. Augustin, 8 m. Tuléar, 12.ii.1958, 4 ♂ (*P. Griveaud*). Ambovombe, iv.1953, 4 ♂, 5 ♀ (*R. Paulian*); 20.vi.1957, 26 ♂, 38 ♀ (*P. Griveaud*). Behara, ii.1954, 1 ♀ (*R. Paulian*). Fort Dauphin, 1 ♂, 2 ♀ (*R. Paulian*).

By the widened hind femur and shortened tibia, *A. rodericensis* belongs to the group of *Aiolopus savignyi* (Krauss, 1890). It can be distinguished from the other species of the genus by the large, very shallow, elongated trapezoidal fastigial foveolae and by the hind tibia being bluish or blue.

Since the specific types of synonymized species were not designated in the original descriptions, the following specimens are designated below as the lectotypes.

Epacromia rodericensis Butler, 1876. In Butler's description only the male is mentioned. However, in the measurements the length is given as 12–18 mm. This indicates that he had several specimens.

In the collection of the British Museum (Natural History) there are one male, two females and one nymph, representing the series on which Butler based his description. They bear the same registration labels—"76 13" and blue labels "Guliver" (name of collector). One female has a round label "*Epacromia rodericensis* Butler's Type". According to the handwriting this specimen was selected probably by W. F. Kirby, and was mistaken for the male. It is possible however, that Butler himself confused the sexes. Since the selection of the type was not published, here the single male is designated as lectotype. It corresponds with the sex of Butler's description and represents one of the specimens of his series.

Epacromia famulus (sic) var. *pusilla* I. Bolivar, 1895 was described on the basis of several specimens of both sexes from the Islands La Digue, Praslin and Mahé

(Seychelles). In 1912 I. Bolivar raised it to specific level and changed the name to *perpusillus*. The specific type was not designated. Here the male from Mahé is designated as the lectotype.

Aeolopus laticosta I. Bolivar, 1912 was described from several specimens of both sexes from Chagos Islands (Seychelles). The specific type was not designated. Here, the male from Diego Garcia is designated as the type.

Aeolopus aldabrensis I. Bolivar, 1912 was described from several specimens of both sexes from Aldabra, Assumption, Cosmoledo and St. Pierre (Aldabra group). He described several variations of this species denoted as var. A, B, C. However he did not designate the specific type. Here the syntype female from Aldabra is designated as the lectotype. On the label, the specimen apparently is denoted as the type by I. Bolivar, but the designation was not published.

Aeolopus dociostauroides I. Bolivar, 1912 was described on the basis of several specimens of both sexes from the Seychelles group of Islands. No specific type was designated. Here the male from Coetivy is designated as the lectotype. Apparently the specimen bears I. Bolivar's original label denoting it as the type.

Aeolopus fasciatus I. Bolivar, 1912 was described from several specimens of both sexes from Farquhar Atoll, Providence and Cerf Island. The specific type was not designated. Here the female from Farquhar Atoll is designated as the type. The specimen bears I. Bolivar's original label "Type".

All the types and paratypes, except *Epacromia famulus* var. *pusilla*, are in the British Museum (Natural History).

When all available material of this species was studied, it became apparent that it represents a continuous series of variation. The variants differ in size and stoutness of body, length of elytra, stoutness of head, pattern and coloration. Other characters, such as width of frontal ridge which depends on the stoutness of head, do not exceed the range of variability; *A. laticosta* being one of the extreme variants in this respect. Fastigial foveolae may be more or less shallow, but their form is constant in all populations.

It is doubtful whether the synonymized species could be regarded as geographical races, as all of them may be placed within the series of Madagascar material. Possibly some of them represent ecological forms or may merely exhibit a range of individual variability.

***PTERNOSCIRTUS* Saussure, 1884**

Conipoda Saussure, 1884 : 192 ; Uvarov, 1940 : 117.

Of medium size, moderately slender. Integument finely rugose. Antenna filiform, longer than head and pronotum together. Fastigium of vertex angular, slightly concave, with obtuse lateral carinulae; fastigial foveolae absent; frons oblique, straight, frontal ridge narrow at apex widening towards base with shallow sulcus or depression and obliterated lateral carinulae. Pronotum saddle-shaped, with weak median and without lateral carinae; dorsum crossed by three sulci; metazona much longer than prozona, its posterior margin widely obtusangular, almost rounded, anterior angle of lateral lobe of pronotum attenuate and protruding externally. Mesosternal interspace wider than its length. Elytra and wings fully developed; elytron

narrow; intercalary vein of medial area straight, strong, weakly serrated; membrane transparent; reticulation sparse. Anterior and middle legs thin, elongated. Hind femur slender; lower lobes of hind knee rounded. Internal spurs of hind tibia about half again as long as external, slightly expanded. Arolium small. Male supra-anal plate elongate angular. Cercus narrow conical, straight, with obtuse apex. Subgenital plate short subconical. Ovipositor of medium length, moderately slender, with curved valves; lower valve with small, rounded, external lateral projection.

Type species: *Conipoda calcarata* Saussure, 1884.

Pternoscirtus calcaratus (Saussure, 1884)

(Text-fig. 15)

Conipoda calcarata Saussure, 1884: 193.

Pternoscirtus calcaratus (Saussure, 1884); Uvarov, 1940: 117.

Acrotylus bicornis Sjöstedt, 1918; 7. **Syn. n.**

♂. Body hairy. Antenna as long as or shorter than head and pronotum together, 20 segmented. Fastigium of vertex narrow, with narrow angular apex and high lateral carinulae. Lower margin of lateral lobe of pronotum curved, posterior angle rounded. Mesosternal interspace twice or more as wide as its length. Elytron exceeds end of abdomen, its apex rounded; intercalary vein of medial area in apical part approximate to median vein, hind wing moderately narrow. Hind femur exceeds end of abdomen. Spines of hind tibia sparse, gradually becoming longer towards apex of tibia.

General colouration sandy-grey or brownish; antenna and anterior legs with brownish rings; external side of hind femur with scattered, small, brownish spots and row of spots on lower carinula; upper and internal side with two brownish fasciae. Base of internal side of hind knee brownish; hind tibia whitish, with two wide, bluish rings in middle of basal half and in apical part; hind wing transparent, colourless or with slightly bluish shade at base.

♀. As the male, but larger. Antenna 19 segmented. Apex of subgenital plate obtusely angular.

Length of body ♂ 15.5-18.2, ♀ 18.7-26.3; pronotum ♂ 3.4-3.9, ♀ 4.0-5.2; elytron ♂ 15.0-19.6, ♀ 20.0-26.0; hind femur ♂ 10.0-11.2, ♀ 11.2-14.4 mm. (These measurements are based on Madagascar material only.)

This species is variable in body size and colouration.

The series from Madagascar have no significant differences from the African series.

The type of *Acrotylus bicornis* Sjöstedt, 1918, was examined and proved to be *Pternoscirtus calcaratus* (Sauss.).

Madagascar Nord: Nosy Komba, xi.1956, 2 ♂. Ambanja, 25.ix.1947, 1 ♀ (*R. Paulian*).

Madagascar Ouest: Ankazoabo, 26.ix.1940, 1 ♀ (*Clément*). Banian, 70 m. Ankazoabo, 14.vii.1957, 4 ♂, 1 ♀ (*P. Griveaud*).

Madagascar Est: Tamatave, Fénériver-Est. xi.1958, 1 ♀ (*J. Elie*). Tamatave, Ambodiatafana, vi.1958, 2 ♂, 4 ♀ (*Randimby*).

Madagascar Sud-Ouest: Sakarana, Lambomakandro, 3 ♀.

Madagascar Sud: Sept Lacs, 100 m. Tuléar, 14.ii.1958, 1 ♂ (*P. Griveaud*). Fort Dauphin, Lebanon, viii.1948, 1 ♂ (*R. Paulian*). Faux Cap, 1 ♂ (*A. Robinson*). Fort Dauphin, Antanimora, 300 m. xii.1959, 1 ♀ (*E. Raharizonina*). Ste-Luce, 7 m. Fort Dauphin, 23.ii.1958, 1 ♂, 1 ♀ (*P. Griveaud*). Androy, Tranomaro, 15.viii.1948, 1 ♀ (*R. Paulian*).

TRILOPHIDIA Stål, 1873

Small. Integument strongly rugose, tuberculate and hairy. Antenna filiform in basal two-thirds and slightly thickened in apical third, longer than head and pronotum together. Head subconical; fastigium of vertex angular, apex truncate, concave, with undulated lateral carinulae and with upper fastigial foveolae; frons slightly oblique, straight; frontal ridge sulcate, with obtuse, almost parallel lateral carinulae. Pronotum tectiform, slightly constricted in prozona, strongly tuberculate; median carina in prozona forms two high tooth-like projections, in metazona carina sharp; dorsum crossed by two sulci; lateral carinae irregular, in front of first sulcus forming tooth-like lateral tubercles. Metazona longer than prozona, slightly inflated, its posterior margin acutangular with obtuse apex. Mesosternal interspace wider than its length. Elytra and wings fully developed, intercalary vein of medial area of elytron strong, finely serrated, membrane parchment-like. Hind femur moderately robust. Spurs of hind tibia not specialized. Arolium small. Male supra-anal plate elongate angular. Cercus narrow conical, with obtuse apex. Subgenital plate short, conical. Ovipositor short, with robust, curved valves; lower valve with small, rounded, external lateral projection.

Type species: *Oedipoda cristella* Stål, 1873.

Trilophidia cinnabarina Brancsik, 1893

(Text-figs. 12, 15)

♂. Antenna 18–19 segmented. Fastigium of vertex elongate, its lateral carinae high, almost S-shaped; fastigial foveolae irregularly rhomboidal, wide, rather shallow; sulcus of frontal ridge rather deep. Prozona of pronotum with two tooth-like projections compressed laterally; three pairs of large lateral tubercles between sulci, diminishing in size towards metazona, and several tubercles in upper part of lateral lobe. Mesosternal interspace about twice as wide as its length. Elytron exceeds end of abdomen, with apex rounded and anterior margin in basal part strongly projecting. Hind wing moderately narrow. Hind femur comparatively short, slightly exceeds end of abdomen. Hind tibia shorter than femur.

Phallic complex: zygoma of cingulum moderately narrow; apodemus short; valve of cingulum short, in profile triangular with acute apex; basal valve of penis long, with small lateral expansion, apical valve of penis robust, in apical part widened and in lower part slightly projecting, apex acute; flexure comparatively thick. Epiphallus with large, articulated ancorae and large lobiform lophi of irregular shape.

General colouration brown with dark brown spots; antenna with brownish rings; elytron with two or three weak, transverse, brownish fasciae; hind wing in basal part cinnabar-red, apical part blackish; anterior and middle legs with incomplete brownish rings; hind femur with external side brown, upper side with blackish fascia, internal side black with two light fasciae in apical part; lower part of internal side of knee blackish; hind tibia with two brown and two ochraceous rings alternating, spine ochraceous with brown apices.

♀. As the male, but larger. Antenna 20–21 segmented. Apex of subgenital plate obtusangular. Spermatheca with small, short apical diverticulum and large, downcurved, sac-like preapical diverticulum.

Length of body ♂ 14.4–16.7, ♀ 20.0–23.0; pronotum ♂ 3.6–3.8, ♀ 4.0–5.0; elytron ♂ 15.2–17.0, ♀ 17.2–22.0; hind femur ♂ 9.2–10.3, ♀ 10.0–12.0 mm.

Madagascar Nord-Ouest: Nosy Be, 1 ♂ (*R. Paulian*). Dct. Majunga, forêt Ankara-fantsika, 120 m. xii. 1959, 2 ♀ (*E. Raharizonina*).

Madagascar Ouest: Station Agric. Bas Mangoky, 1 ♂.

Madagascar Est: Mahanoro, 1 ♂, 2 ♀ (*A. Molet*). Dct. Sambara, Marojejy, Ambinanitelo, 500 m. xii. 1958, 1 ♀ (*E. Raharizonina*). Brickaville, Anivorano, Sahamany, iii. 1960, 1 ♀ (*P. Griveaud*). Ile St. Marie, Ambatoroa, 1 ♂.

Madagascar Sud-Ouest : Sept Lacs, 50 m. Tuléar, vii.1957, 2 ♂ (*A. Robinson*).
Lambomkandro, 550 m. Sakaraha, 7.ii.1958, 1 ♀ (*P. Griveaud*).

Madagascar Sud : Fort Dauphin, forêt d'Isaka, iv.1953, 1 ♂ (*R. Paulian*). Androy
Tanomaro, 15.viii.1948, 1 ♀ (*R. Paulian*).

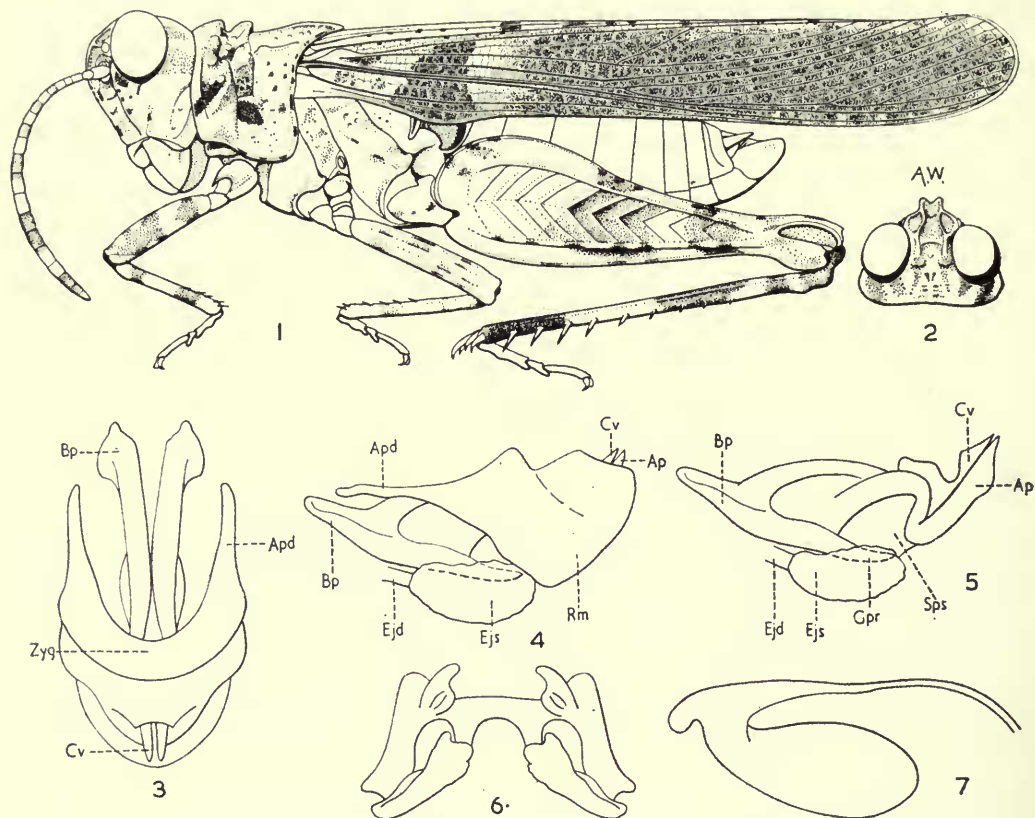


FIG. 12. *Trilophidia cinnabarina* Brancsik, 1893. 1, male. 2, head from above, slightly tilted backwards, 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves, removed. 6, epiphallus. 7, spermatheca.

Trilophidia cinnabarina Brancs. is very near to the African species of the genus. The main difference is the cinnabar-red hind wings. The latter coloration has not been found in African species of the genus.

PYCNOCRANIA Uvarov, 1941

Of medium size or large. Integument strongly rugose. Antenna filiform, longer or shorter than head and pronotum together. Head globular; fastigium of vertex sloping forwards, wide, with truncate apex and short median and low lateral carinulae; frons excurved; frontal ridge wide, flat with rugose surface and almost obliterated lateral carinulae; small, irregularly tri-

angular, almost rounded, shallow fastigial foveolae present. Pronotum tectiform, median carina higher in prozona than in metazona, crossed and incised by posterior sulcus only; lateral carinae absent. Metazona much longer than prozona, its posterior margin angular, with obtuse apex. Mesosternal interspace much wider than its length. Elytra and wings fully developed; intercalary vein of medial area strongly serrated. Hind femur wide, with slightly expanded lower external area and strongly serrated upper and lower carinae. Spurs of hind tibia not specialized. Arolium small. Male supra-anal plate elongate angular, with obtuse apex. Cercus narrow conical, with obtuse apex. Subgenital plate short, conical, with obtuse apex. Valves of ovipositor short, robust, with curved apices.

Type species: *Chloeobora grandidieri* Saussure, 1888.

***Pycnocrania grandidieri* (Saussure, 1888)**

(Text-figs. 13, 15)

Chloeobora grandidieri Saussure, 1888 : 33.

Pycnocrania grandidieri (Saussure, 1888); Uvarov, 1941 : 298.

♂. Much smaller and less robust than female. Antenna longer than head and pronotum together, 22 segmented. Fastigium of vertex almost flat, slightly concave; frontal ridge very wide, in lower half obliterated. Surface of pronotum tuberculate; median carina high, obtuse; posterior margin of metazona acutangular with slightly incurved sides; lateral lobe of pronotum higher than its length. Elytron exceeds end of abdomen, with oblique apex; anterior margin expanded in basal part. Hind wing moderately narrow. Hind femur slightly exceeds end of abdomen.

Phallic complex: zygoxa of cingulum short and comparatively narrow; apodemus moderately long, robust; valve of cingulum short, comparatively narrow, with acute apex; basal valve of penis slightly expanded and excurved; apical valve of penis robust, curved, with postero-ventral projection and obtuse apex; flexure thick, robust. Epiphallus with large, articulate ancorae, which form lateral projections; lophi large, bilobate, with lobes of irregular form.

General colouration brownish; dorsum of pronotum with faint ochraceous X-shaped pattern; elytron with brown spots, sometimes forming indistinct transverse fasciae; hind wing at base light lemon-yellow, in middle of posterior half faint infumate, incomplete fascia present; external medial area of hind femur grey, in middle with narrow, longitudinal, ochraceous stripe; internal side of hind femur ochraceous, in lower part reddish; lower internal lobe of hind knee reddish; hind tibia blue, at base on internal side with red spot; spines whitish with brown apices.

♀. As the male, but larger and more robust. Antenna shorter than head and pronotum together, 21 segmented. Posterior margin of metazona obtusangular. Elytron reaching or very slightly exceeding end of abdomen. Subgenital plate with straight apex. Spermatheca without apical diverticulum, preapical diverticulum sac-shaped, downcurved.

Length of body ♂ 23.0-25.7, ♀ 33.0-45.0; pronotum ♂ 5.5-7.0, ♀ 8.3-9.0; elytron ♂ 19.0-21.2, ♀ 24.0-30.0; hind femur ♂ 14.0-15.2, ♀ 17.7-21.0 mm.

Madagascar Ouest: Isalo, viii. 1948, 1 ♀ (*R. Paulian*).

Madagascar Centre: Tananarive, Tsimbazaza, 12.i. 1948, 1 ♀, 3♂.

***GASTRIMARGUS* Saussure, 1884**

Medium to large. Integument smooth or finely rugose. Antenna filiform, about as long as or shorter than head and pronotum together. Head globular; fastigium of vertex slightly narrowing forwards, with truncate apex and well developed lateral and weak median carinulae; frons vertical or slightly oblique; frontal ridge flat, wide, with parallel, obtuse lateral carinulae. Pronotum tectiform with high, sometimes almost crest-shaped, median carina; lateral carinae

absent ; prozona sometimes slightly constricted ; no sulci or only weak posterior sulcus crossing medium carina ; metazona longer than prozona, its posterior margin acutangular or elongated acutangular. Mesosternal interspace much wider than its length. Elytra and wings fully developed or shortened ; intercalary vein of medial area of elytron strong, finely serrated ; anterior

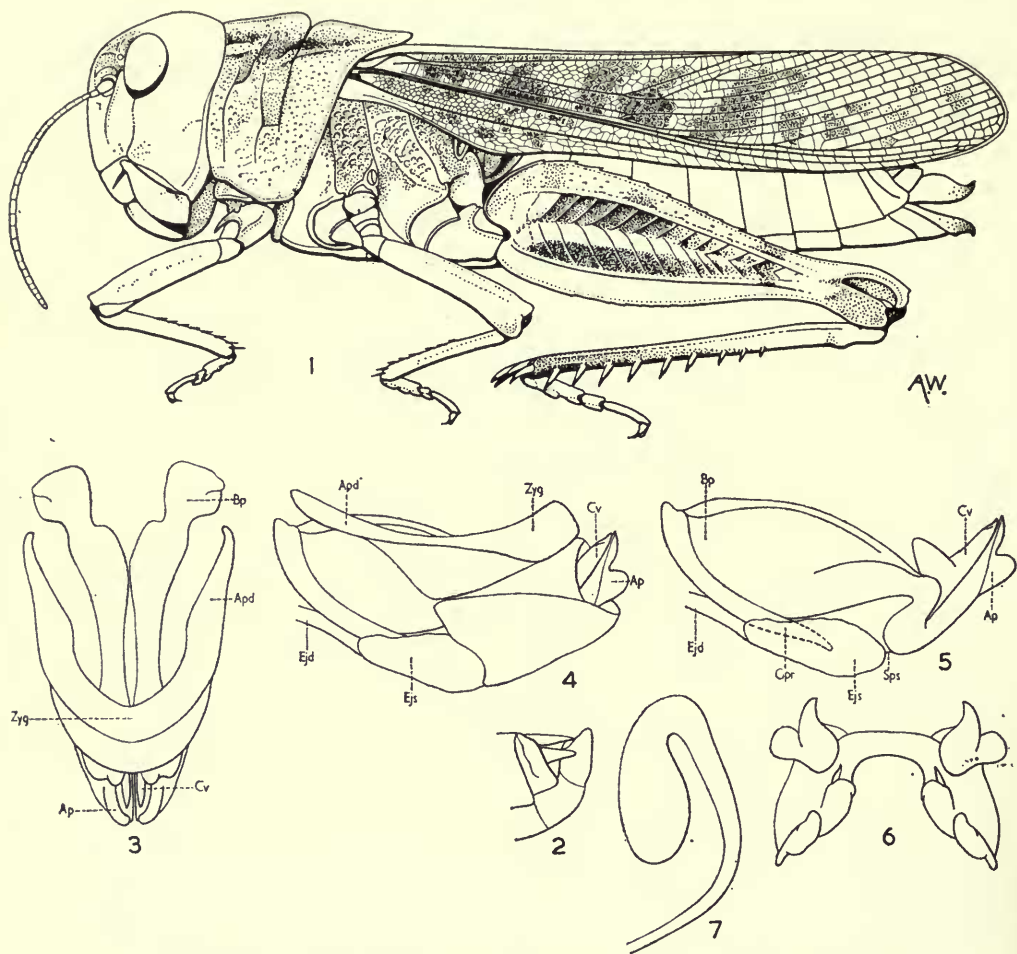


FIG. 13. *Pyncocrania grandidieri* (Saussure, 1888). 1, female. 2, end of male abdomen. 3, phallic complex, from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves, removed. 6, epiphallus. 7, spermatheca.

half of medial area with thickened transverse veinlets. Hind femur slender. Spurs of hind tibia not specialized. Arolium of medium size. Male supra-anal plate elongate angular, with incurved sides and obtuse apex. Cercus conical, with obtuse apex. Subgenital plate conical, with obtuse apex. Ovipositor short, robust, with curved valves ; lower valve with small, external lateral projection.

Type species : *Gastrimargus verticalis* Saussure, 1884.

Gastrimargus africanus (Saussure, 1888)

(Text-fig. 15)

Oedaleus marmoratus var. *africana* Saussure, 1888 : 39.*Gastrimargus africanus* (Saussure, 1888) ; Kirby, 1910 : 227.*Gastrimargus africanus* var. *madagascariensis* Sjöstedt, 1928 : 41. Syn. n.

♂. Antenna 26 segmented. Fastigium of vertex slightly concave, almost flat, its carinulae excurved, merging with carinulae of frontal ridge. Posterior margin of metazona acutangular and moderately attenuate ; lateral lobe of pronotum higher than its length, its lower margin excurved. Elytron far exceeds end of abdomen, with rounded apex, anterior margin at basal part slightly projecting. Hind femur exceeds end of abdomen. Spines of hind tibia relatively short.

General colouration green or brown with all intermediate shades ; gena with two oblique blackish stripes ; dorsum of pronotum on sides of median carina often with wide dark brown stripes, crossed by light brown stripes, which form an X-shaped pattern ; elytron brownish or blackish with dorsal part often green, crossed by two incomplete, narrow, whitish stripes ; basal part of hind wing lemon-yellow, middle with wide, sharp, dark brown or blackish fascia, apical part colourless, apex of remigium sometimes slightly infumate ; external side of hind femur sometimes with one or two short, oblique brown stripes ; internal side in basal part blackish, in apical ochraceous, sometimes with lighter preapical ring ; base of hind tibia brown, followed by wide whitish ring, distal part crimson-red.

♀. As the male, but larger. Antenna 26-27 segmented. Posterior margin of metazona less acutangular and less attenuate than in male. Subgenital plate with obtusangular, almost straight apex.

Length of body ♂ 23.5-26.6, ♀ 33.0-38.2 ; pronotum ♂ 6.5-7.0, ♀ 9.5-10.0 ; elytron ♂ 24.0-30.2, ♀ 30.9-40.0 ; hind femur ♂ 15.5-17.0, ♀ 20.0-24.2 mm. The measurements based on Madagascar specimens only.

Madagascar Nord-Ouest : Antanambola, Bealanana, xi. 1957, 1 ♀ (*J. Elie*).

Madagascar Ouest : Ambohiby, 1600 m. Tsiroanomandidy, 26.v. 1948, 1 ♂ (*R. Paulian*). Dct. Miandrivazo, Ambovombe, iii. 1960, 1 ♂ (*Cruchet*).

Madagascar Centre : Forêt d'Ambohitantely, 23.xii. 1947, 1 ♂ (*R. Paulian*). Forêt Vakoama, Ambalamarovandana, 1530 m. Andringitra—Ambalavao, 21.i. 1958, 1 ♀ (*P. Griveaud*). Ambatofinandrahana, 1180 m. 27.vii. 1957, 1 ♂, 1 ♀ (*P. Griveaud*). Soavina, Sud-Ouest d'Ambositra, i. 1951, 1 ♂ (*R. Paulian*). Mandrotsy, Betroka, 1 ♂ (*J. Elie*). Amboazary Anjozorobe 1340 m. xi. 1957, 1 ♀ (*P. Griveaud*). Tananarive, Tsimbazaza, i. 1948, 1 ♂, 5 ♀.

Madagascar Est : Station Agric. Lac Alaotra, xi. 1947, 1 ♀. Ankasoka, dct. Moramanga, i. 1959, 1 ♀ (*P. Griveaud*). Perinet, 1 ♂, 1 ♀. Sandrangato, dct. Moramanga, xii. 1959, 1 ♀ (*P. Griveaud*).

Madagascar Sud-Est : Sakavondro, 225 m. forêt Isaka, 24.ii. 1958, 2 ♀ (*P. Griveaud*) Ivohibe, Farafangana, 1 ♀.

Madagascar Sud : Fort Dauphin, 1 ♂ (*R. Paulian*).

The series of this species from Madagascar has no differences from the series from Africa. The var. *madagascariensis* Sjö. which Sjöstedt claimed as being of smaller size in a large series proved indistinguishable from the African specimens.

Gastrimargus africanus is generally very variable in body size, relative length of elytra, relative length of hind femur and acuteness of posterior margin of pronotum.

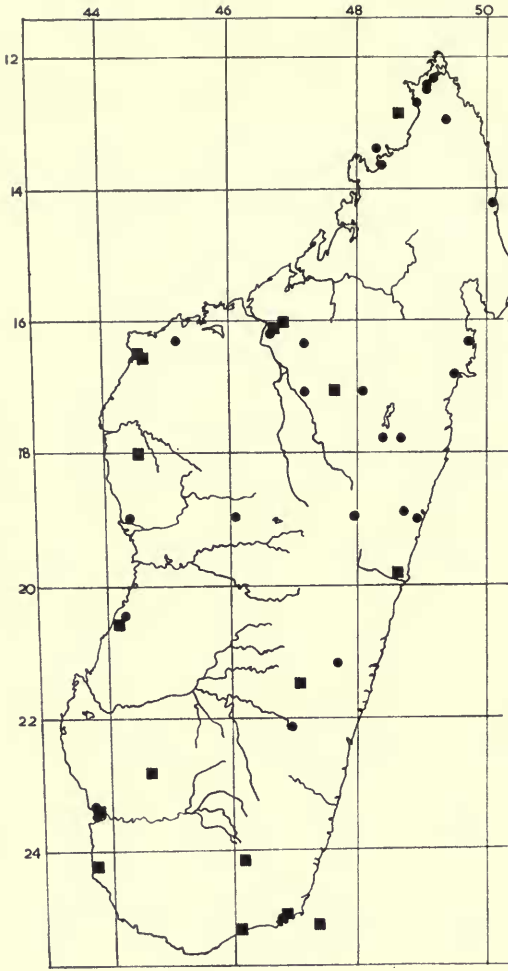


FIG. 14. Geographical distribution.

- Paracinema tricolor* (Thunberg, 1815).
- Aiolopus rodericensis* (Butler 1876).

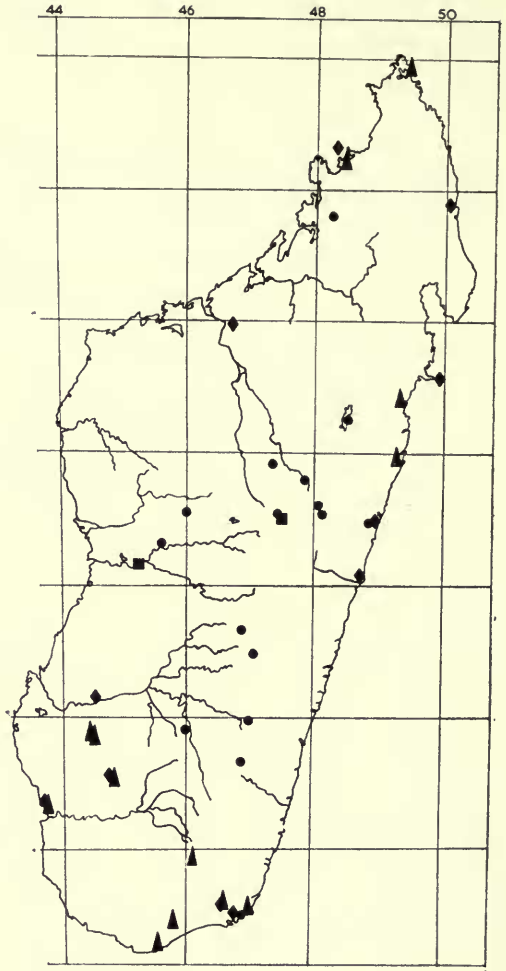


FIG. 15. Geographical distribution.

- ◆—*Trilophidia cinnabarina* Brancsik, 1893.
- Pyncocrania grandidieri* (Saussure, 1888).
- ▲—*Pternoscirtus calcaratus* (Saussure, 1884).
- Gastrimargus africanus* (Saussure, 1888).

OEDALEUS Fieber, 1853

Of medium size. Integument finely rugose and dotted. Antenna filiform, longer than head and pronotum together. Head approximating to subglobular; fastigium of vertex angular, with truncate apex, flat or slightly concave, with obtuse lateral carinulae; frons vertical, slightly excurved; frontal ridge flat or shallowly sulcate, slightly narrowed at apex with obtuse some-

times indistinct, parallel lateral carinulae. Pronotum tectiform or high tectiform, slightly constricted in prozona, with obtuse median and without lateral carinae, with X-shaped pattern on dorsum; median carina crossed by posterior sulcus only; metazona slightly longer than prozona, its posterior margin from acutangular to rounded. Mesosternal interspace wider than its length. Elytra and wings fully developed; intercalary vein of media larea of elytron strong, weakly serrated; apical half with transparent membrane, sub-costal apical area of hind wing slightly thickened. Hind femur slender. Spurs of hind tibia not specialized. Arolium of medium size. Supra-anal plate of male angular. Cercus narrow conical, with obtuse apex. Subgenital plate conical, with obtuse apex. Ovipositor short, with robust, curved valves; lower valve with elongate external, lateral projection.

Type species: *Acridium nigrofasciatum* Degeer, 1773.

Oedaleus virgula (Snellan van Vollenhoven, 1869)

(Text-figs. 16, 20)

Oedipoda virgula Snellan van Vollenhoven, 1869: 11.

Epacromia inclyta Walker, 1870: 773; Uvarov, 1925: 276.

Oedaleus (Gastrimargus) madecassus Saussure, 1884: 115; Uvarov, 1925: 276.

Oedaleus nigrofasciatus var. *virgula* (Snellan van Vollenhoven, 1869); Saussure, 1888: 40.

Oedaleus virgula (Snellan van Vollenhoven, 1869); Kirby, 1910: 226.

♂. Antenna 22-23 segmented. Fastigium of vertex slightly concave; frontal ridge at ocellus slightly depressed. Pronotum tectiform, its posterior margin obtusangular; lateral lobe of pronotum higher than its length, lower margin oblique and excurved, anterior angle obtusangular and slightly attenuate, posterior angle rounded. Elytron far exceeds end of abdomen, its apex rounded, intercalary vein of medial area of elytron strongly serrated. Upper external area of hind femur in basal part slightly expanded.

Phallic complex: zygoma of cingulum short and comparatively narrow; apodemus short and slender; valve of cingulum short, with acute apex; basal valve of penis excurved and slightly expanded; apical valve of penis robust, slightly widened at apical part, with small posterior-ventral projection and acute apex; flexure moderately thick. Epiphallus with small articulated ancorae and very large, bilobate lophi.

General colouration greenish or brownish; head, between facial carina and gena, with brown stripe; dorsum of pronotum with ochraceous or whitish X-shaped pattern, which sometimes is obliterated partly or completely; elytra with two or three narrow, whitish or ochraceous, incomplete fasciae; hind wing in basal part lemon-greenish, with weak infumate fascia; hind femur on both sides of the same colour as general colouration of the specimen; above, with short, brown, transverse fascia; hind femur bluish or light brownish.

♀. As the male, but larger. Apex of subgenital plate slightly excurved. Spermatheca with small and short apical diverticulum and large, downcurved, sac-like preapical diverticulum.

Length of body ♂ 16.3-22.0, ♀ 25.7-30.5; pronotum ♂ 3.7-5.0, ♀ 5.5-6.7; elytron ♂ 15.2-22.0, ♀ 22.0-31.0; hind femur ♂ 10.6-13.0, ♀ 14.6-17.5 mm.

Madagascar Nord: Dct. Diégo Suarez, Mont. des Français, ii. 1959, 1 ♀ (*A. Robinson*).

Madagascar Nord-Ouest: Ampijoroa, Tsaramandroso, 2 ♂. Nosy Mitsio, i. 1960, 1 ♂, 1 ♀ (*R. Paulian*). Nosy Be, Plage de Madirokely, vii. 1957, 1 ♂, 4 ♀ (*R. Paulian*).

Madagascar Nord-Est: Ile Sainte-Marie, Ambatoroa, ii. 1959, 2 ♂, 2 ♀ (*Razafiman-dimby*). Ile Sainte-Marie, forêt Ambohidena, x. 1960, 3 ♀ (*P. Griveaud*).

Madagascar Ouest: Morondava, forêt sud de Befasy, i. 1956, 2 ♂, 2 ♀ (*R. Paulian*).

Madagascar Est: Pce. de Tamatave, Perinet Fanandiana, x.1958, 4 ♀. Dct. Tamatave, Ambodihatafana, x.1958, 1 ♂, 1 ♀ (*Randimby*). Tamatave, Fénériver, Station forestière de Taratasy, vii. 1958, 2 ♂, 1 ♀ (*J. Elie*). Pce. de Tamatave, Station Agric. Ivoloina, vi. 1958, 3 ♂, 1 ♀ (*J. Elie*). Antanambé, baie d'Antongil, 1 ♂. Station Agric. de Brickaville, 2 ♀, Perinet, 1 ♂. Ambila, vii. 1951, 1 ♀ (*R. Paulian*).

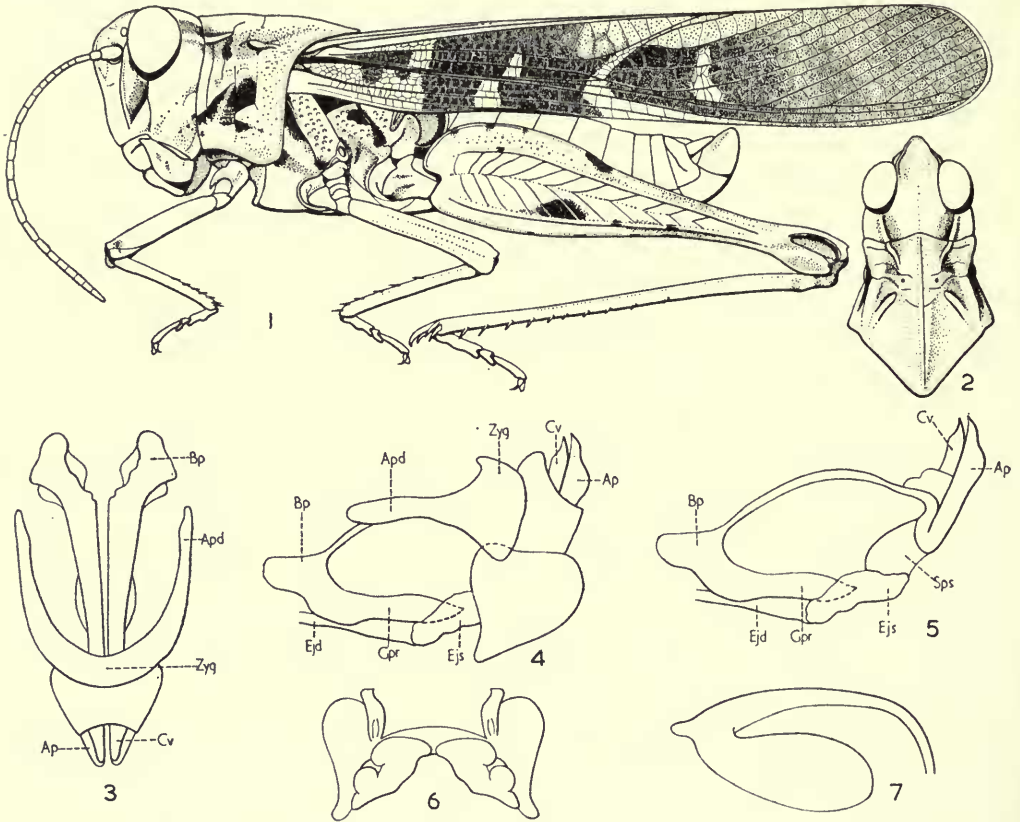


FIG. 16. *Oedaleus virgula* (Snellan van Vollenhoven, 1869). 1, male. 2, head and pronotum from above. 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves, removed. 6, epiphallus. 7, spermatheca.

Madagascar Sud-Ouest: Lambomakandro, 500 m. Tuléar, vii.1957, 1 ♂ (*A. Robinson*). Amboasary, 220 m. Ambovombe, 19.vi.1957; 2 ♂, 1 ♀ (*P. Griveaud*). Tuléar, St. Augustin, iii.1956, 1 ♀ (*A. Robinson*). Sept Lacs 50 m. Tuléar, vii.1957, 3 ♂, 1 ♀ (*A. Robinson*). Lac Iotry, 40 m. Morombe, 8.vii.1957, 1 ♂ (*P. Griveaud*).

Madagascar Sud-Est: Sakavondro, 225 m. Forêt Isaka, Fort Dauphin, 24.ii.1958, 1 ♀ (*P. Griveaud*). Behara, iv.1937, 1 ♀ (*A. Seyrig*). Fort Dauphin, Ste.-Luce, 7 m. 23.ii.1958, 1 ♀ (*P. Griveaud*). Fort Dauphin, Lebanon, viii.1948, 1 ♀ (*R. Paulian*).

Madagascar Sud: Dct. Fort Dauphin, Antanimora, 300 m. xii.1957, 3 ♂ (*E.*

Raharizonina). Ampanihy, 250 m. 6.ii.1958, 1 ♀ (*P. Griveaud*). Ambovombe, iv.1953, 1 ♀ (*R. Paulian*).

Oedaleus virgula varies very much in body size, in the pattern of pronotum, which is sometimes uniformly coloured, and in general colouration. This species is very near to the South African *Oedaleus nigrofasciatus* Degeer, 1773, from which it differs by the colouration of the hind tibia, which in *O. nigrofasciatus* is red or reddish, and by the less tectiform pronotum.

LOCUSTA Linnaeus, 1758

Oedipus Berthold, 1827 : 411 ; Roberts, 1941 : 26.

Pachytylus Fieber, 1852 : 5 ; Kirby, 1910 : 228.

Large. Integument smooth or finely dotted. Antenna filiform, about as long as head and pronotum together. Head globular ; fastigium of vertex narrowing forwards with obtuse, almost truncate apex, slightly concave, with weak lateral and median carinae ; frons vertical, excurved ; frontal ridge moderately wide, slightly depressed at ocellus, with parallel almost obliterated lateral carinulae. Pronotum tectiform or constricted in prozona and almost saddle-shaped ; median carina well developed, crossed by posterior sulcus only ; metazona slightly longer than prozona, its posterior margin obtusangular or almost rounded. Mesosternal interspace about as long as wide or slightly longer. Elytra and wings fully developed ; intercalary vein of medial area strong and finely serrated ; anterior part of medial area with dense thickened transverse veinlets. Hind femur slender. Arolium small. Male supra-anal plate angular. Cercus narrow conical, with obtuse apex. Subgenital plate conical, with subacute apex. Ovipositor short, robust, with curved valves ; lower valve with angular, external, lateral projection.

Type species : *Gryllus (Locusta) migratorius* Linnaeus, 1758.

Locusta migratoria capito (Saussure, 1884)

(Text-figs. 17, 20)

Pachytylus migratorioides var. *capito* Saussure, 1884 : 119.

Locusta capito (Saussure, 1884) ; Kirby, 1910 : 229.

♂. Antenna 25-27 segmented. Head sometimes lightly inflated ; fastigium of vertex longer or shorter than its width. Pronotum tectiform or saddle-shaped ; lateral lobe higher than its length ; posterior margin of metazona angular or rounded. Elytron far exceeds end of abdomen, with rounded apex ; intercalary vein of medial area straight ; anterior part of medial area wider than posterior.

General colouration green, greenish or brown ; dorsum of pronotum with a pair of brown longitudinal stripes or uniformly coloured ; elytra covered with small brownish spots ; hind wing transparent colourless or slightly lemon-yellowish at base ; hind tibia reddish, ochraceous or brownish. (The latter may be a post-mortem change.)

♀. As the male, but larger. Subgenital plate with almost straight, slightly excurved apex.

Length of body ♂ 38.0-44.0, ♀ 36.3-53.5 ; pronotum ♂ 8.4-9.0, ♀ 8.7-11.4 ; elytron ♂ 40.5-45.6, ♀ 40.0-55.5 ; hind femur ♂ 22.0-23.0, ♀ 22.0-30.0 ; maximal width of head ♂ 5.4-7.6, ♀ 6.0-8.7 mm. (All measurements based on available material, not from published sources.)

Locusta migratoria capito occurs in two forms (Phase *Solitaria* and Phase *Gregaria*). The extreme forms are very different, but all intermediate forms (Phase *Transiens*) between them exist. The extreme forms are distinguished below.

Ph. *Solitaria*. Head narrower and not inflated; fastigium of vertex longer than its width. Pronotum tectiform, its posterior margin angular. Hind femur relatively longer. Female much larger than male.

Ph. *Gregaria*. Head wider and inflated; fastigium of vertex shorter than its width. Pronotum saddle shaped, its posterior margin rounded or widely obtusangular. Hind femur relatively shorter. Female slightly larger than male.

Ph. *Transiens*. In this phase all the above mentioned characters vary between ph. *gregaria* and ph. *solitaria*, forming all intermediate forms.

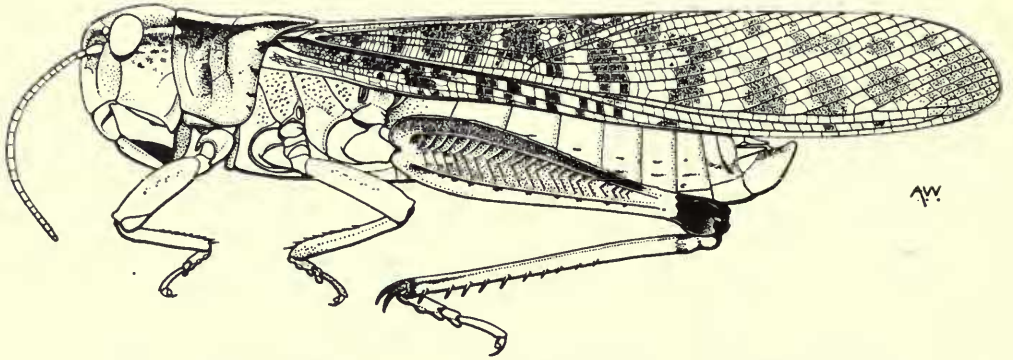


FIG. 17. *Locusta migratoria capito* (Saussure, 1884). Phase gregaria, male.

Madagascar Nord-Ouest : Ankarafantsika, 170 m. i. 1957, 1 ♀.

Madagascar Ouest : Andobo, 190 m. forêt Antsingy, dct. Antsalova, ii. 1957, 1 ♀ (*P. Griveaud*). Morondrava, forêt sud de Befasy, 1 ♀. Sakarana, Lambomakandro, 9. iv. 1956, 1 ♀.

Madagascar Centre : Dct. Ambohimahasoia, forêt Tsarafidy, 1450 m. xii. 1959, 1 ♂, 2 ♀ (*P. Griveaud*). Tananarive, Tsimbazaza, 19. i. 1948, 3 ♂. Ihosy, iv. 1953, 3 ♂ (*R. Paulian*). Ambohitantely, i. 1956, 1 ♂, 2 ♀, (*P. Griveaud*). Forêt d'Ambohitantely, 23. xii. 1947, 1 ♂ (*R. Paulian*).

Madagascar Est : Ankasoka, 1130 m. Route Lakato, xii. 1956, 1 ♀. Toohibe, Farafangana, 1 ♂. Dct. de Moramanga, Ankasoka, 1130 m. i. 1959, 2 ♀ (*P. Griveaud*). Perinet, 1 ♂.

Madagascar Sud : Amboasary, 222 m. Ambovombe, 20. vi. 1957, 1 ♀ (*P. Griveaud*). Ambovombe, iv. 1953, 2 ♀ (*R. Paulian*).

ACROTYLUS Fieber, 1853

Small or medium size. Integument rugose and hairy. Antenna filiform, longer than head and pronotum together. Fastigium of vertex angular, strongly concave, with high lateral carinulae; fastigial foveolae present, sometimes indistinct; frons vertical; frontal ridge sulcate, with high lateral carinulae, strongly constricted at apex and slightly divergent downwards. Pronotum short, saddle-shaped, strongly tuberculate and sculptured in prozona, with well developed median and irregular tuberculate lateral carinae, which are sometimes absent in metazona; two sulci crossing dorsum; metazona longer than prozona, its posterior margin rounded or angular.

Mesosternal interspace wider than its length. Elytra and wings fully developed; intercalary vein of medial area strong and strongly serrated; membrane semi-transparent. Hind femur slender; lower lobes of hind knee rounded. Internal pair of spurs of hind tibia longer than external. Arolium small. Male supra-anal plate elongate angular. Cercus straight or slightly curved, with obtuse apex. Subgenital plate short, obtusely conical. Ovipositor short, robust, with curved valves; lower valve with angular, external lateral projection.

Type species: *Gryllus insubricus* Scopoli, 1786.

KEY TO SPECIES

- 1 (2) Pronotum saddle-shaped; posterior margin of metazona rounded. Hind wing with red or yellow base and brown fascia . . . *patruelis* (Herrich-Schäffer)
- 2 (1) Pronotum slightly saddle-shaped, approximating to tectiform, with dorsum flattened between lateral carinae; posterior margin of metazona obtusangular. Hind wing colourless or slightly infumate (Fig. 18) . . . *aberrans* Bruner

Acrotylus patruelis (Herrich-Schäffer, 1838)

(Text-fig. 21)

Gryllus patruelis Herrich-Schäffer, 1838: 157.

Acrotylus patruelis (Herrich-Schäffer, 1838); I. Bolivar, 1876: 363.

♂. Antenna 22–23 segmented. Fastigial foveolae poorly developed; lateral carinae of frontal ridge sinuate. Pronotum saddle-shaped, with large, low convexities between sulci; median carina well developed, sharp, crossed by posterior sulcus only; posterior margin of metazona widely rounded. Elytron far exceeds end of abdomen, narrow, with rounded apex, its anterior margin in basal part slightly projecting; intercalary vein of medial area straight, in middle of area.

General colouration brown or brownish; lateral lobe of pronotum with brown H-shaped pattern; elytron brown, with lighter vannal part; hind wing in basal part red, with wide, incomplete, brown fascia and colourless apical part, apex sometimes darkened; hind femur above with three transverse, brown fasciae; hind tibia greyish or ochraceous.

♀. As the male, but larger. Antenna 24–25 segmented. Subgenital plate with slightly ex-curved, almost straight apex.

Length of body ♂ 17.0–18.0, ♀ 21.0–23.0; pronotum ♂ 2.8–3.0, ♀ 3.2–3.5; elytron ♂ 19.0–20.0, ♀ 21.8–23.7; hind femur ♂ 9.8–10.2, ♀ 11.5–12.0 mm.

A few specimens of this species from various parts of Madagascar possess yellow instead of red basal part of hind wing.

Madagascar Nord-Ouest: Ampijoroa, 170 m. Ankarafantsika, i. 1957, 3 ♂, 2 ♀.

Madagascar Ouest: Isalo, iii. 1956, 1 ♂ (*A. Robinson*). Morondava forêt, sud de Befasy, i. 1956, 1 ♂ (*R. Paulian*).

Madagascar Centre: Tananarive, 1 ♂.

Madagascar Sud-Ouest: Tuléar, St. Augustin, ii–iii. 1958, 1 ♂, 1 ♀ (*P. Griveaud*). Amboasary, 220 m. Ambovombe, 19. vi. 1957, 1 ♂ (*P. Griveaud*). Lambomakandro, 500 m. Tuléar, vii. 1957, 2 ♀ (*A. Robinson*). Lac Tsimananpetsotsa, Andranomby, iv. 1948, 1 ♀ (*R. Paulian*).

Madagascar Sud: Fort Dauphin, Poste Adm. Tsivory. Andabolava, xi. 1959, 1 ♀. Ambovombe, iv. 1953, 2 ♀ (*R. Paulian*).

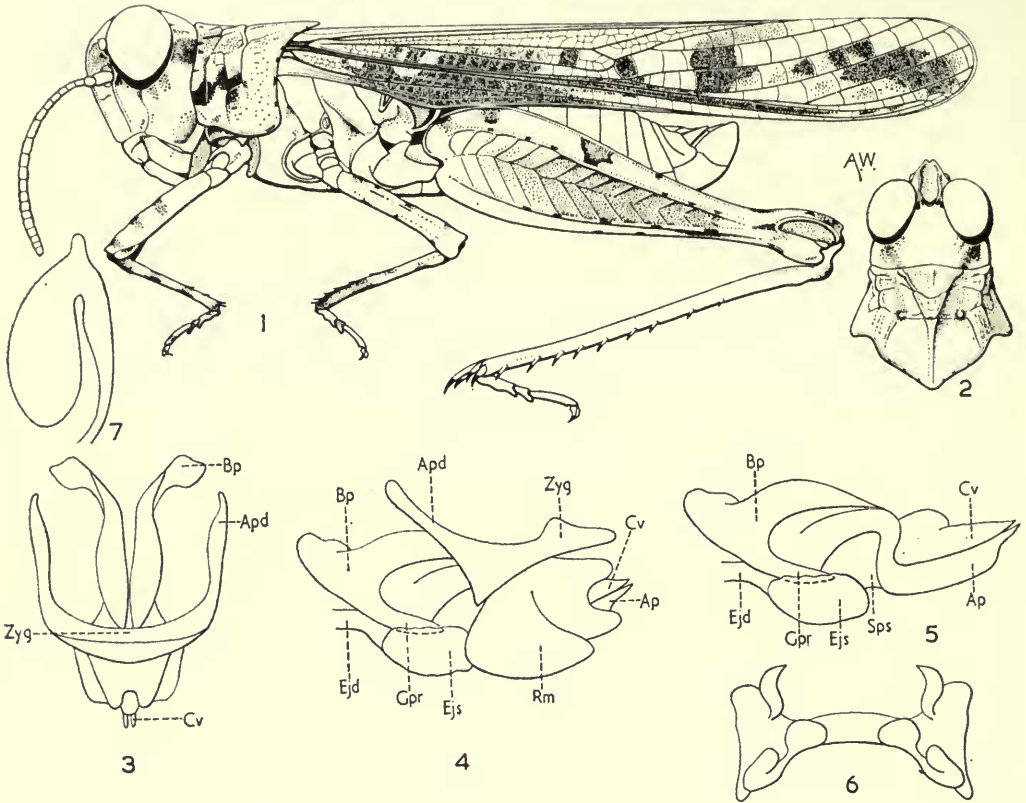


FIG. 18. *Acrotylus aberrans* Bruner, 1910. 1, male. 2, head and pronotum from above. 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves, removed. 6, epiphallus. 7, spermatheca.

Acrotylus aberrans Bruner, 1910

(Text-figs. 18, 21)

♂. Antenna 21–22 segmented. Fastigium of vertex deep and narrow; fastigial foveolae poorly developed; sulcus of frontal ridge deep; lateral carinulae slightly divergent, almost parallel. Pronotum slightly saddle-shaped, approximating to tectiform; median carina low, lateral carinae in prozona strongly converging backwards, forming inverse-triangular elevation of prozona, disconnected from lateral carinae of metazona; these form a pair of tubercles in front of posterior sulcus and are strongly divergent in anterior part of metazona, in posterior part they are obliterated; posterior margin of metazona obtusangular. Mesosternal interspace twice as wide as its length. Elytron exceeds end of abdomen, with rounded apex; anterior margin in basal part slightly projecting; intercalary vein of medial area straight, oblique, strongly serrated. Hind femur moderately elongated, exceeds end of abdomen.

Phallic complex: zygoma of cingulum short and wide; apodemus slender, moderately long; valve of cingulum large, with acute apex; basal valve of penis strongly excurved and slightly expanded; apical valve of penis long, robust, with slightly expanded ventral side and acute

apex; flexure thick, robust. Epiphallus with small, articulated ancorae and bilobate lophi forming large lobes.

General colouration brown; below lateral carinae of prozona and on lateral lobes of pronotum two dark brown, oblique stripes; tubercles in front of posterior sulcus ochraceous; elytron brown, medial area dark brown, with whitish spot in apical part; hind wing colourless or slightly infumate; hind femur above with three fasciae, basal and apical being weak and middle one large and sharp, triangular in shape; hind tibia red, spines blackish.

♀. As the male, but larger. Antenna 22-23 segmented. Subgenital plate with slightly sinuate apex. Spermatheca with short, small apical diverticulum and large, downcurved, sac-like pre-apical diverticulum.

Length of body ♂ 11.0-13.6, ♀ 15.3-18.0; pronotum ♂ 2.4-2.7, ♀ 3.2-3.5; elytron ♂ 11.5-14.0, ♀ 13.5-16.5; hind femur ♂ 7.5-9.0, ♀ 9.0-10.0 mm.

Acrotylus aberrans is aberrant on account of the obtusangular posterior margin of pronotum, which is usually rounded in this genus.

Madagascar Est: Route de Tamatave, km. 22, 10.x.1948, 1 ♀ Ambatofitorana, km. 303 rte. de Mananjary, 2 ♂, 1 ♀.

Madagascar Sud-Ouest: Lac Tsimananpetsotsa, Andranomby, 20.iv.1948, 1 ♂ (*R. Paulian*). St. Augustin, 8 m. Tuléar, 12.ii.1958, 1 ♂, 2 ♀ (*P. Griveaud*). Banian, 70 m. Ankazoabo, vii.1957, 5 ♂ (*A. Robinson*). Ambovombe, vi.1957, 6 ♂, 1 ♀ (*P. Griveaud*). Amboasary, 220 m. Ambovombe, 20.vi.1957, 5 ♂, 3 ♀ (*P. Griveaud*). Lac Iotry, 40 m. Morombe, vii.1957, 4 ♂ (*A. Robinson*); 1 ♂, 1 ♀ (*P. Griveaud*).

CALEPHORUS Fieber, 1853

Oxycoryphus Fischer, 1853: 311; Rehn, 1902: 317.

Small and slender. Integument slightly rugose, almost smooth. Antenna compressed and widened, shorter than head and pronotum together. Head conical. Fastigium of vertex elongate angular, weakly convex, almost flat, with sharp marginal carinulae; frons strongly oblique, incurved; frontal ridge high, narrow, sulcate, with obtuse lateral carinulae, constricted at apex. Pronotum slightly tectiform, with sharp median and strong lateral carinae angularly incurved at prozona; dorsum and median carina crossed by posterior sulcus only; metazona longer than prozona, its posterior margin elongate angular, with obtuse apex. Mesosternal interspace wider than its length. Elytra and wings fully developed; intercalary vein of medial area of elytron strong, finely serrated; medial and cubital area slightly widened; membrane in apical third transparent, reticulation sparse. Apical part of subcostal area of hind wing sclerotized. Hind femur slender; lower lobes of hind knee rounded, internal pair of spurs of hind tibia about twice longer than external. Arolium small. Male supra-anal plate angular. Cercus narrow conical, with obtuse, slightly incurved apex. Subgenital plate short, subconical, with obtuse apex. Ovipositor moderately short, robust, with strongly curved valves.

Type species: *Acridium compressicornis* Latreille, 1804.

Calephorus ornatus (Walker, 1870)

(Text-figs. 19, 21)

Stenobothrus ornatus Walker, 1870: 764.

Calephorus ornatus (Walker, 1870); I. Bolivar, 1914: 99.

♂. Antenna 21 segmented. Fastigium of vertex acutangular; fastigial foveolae lower, triangular, very shallow. Pronotum slightly tectiform, with tendency to be saddle-shaped;

lateral carinae angularly incurved, in prozona straight, divergent forwards, in metazona excurved and divergent backwards, sometimes almost obliterated; lateral lobe longer than its height, with longitudinal callosity in upper anterior and lower posterior part; lower margin sinuate; posterior margin of metazona acutangular. Elytron narrow, well exceeds end of abdomen, apex rounded, anterior margin in basal part forms projection; main veins strongly convex, sharp; medial and cubital area widened, with sparse, parallel, transverse veinlets; intercalary vein of medial area short, beginning about middle of the area, straight, oblique, at apex approximating medial vein and then curved posteriorly, thickened in middle and at curved part.

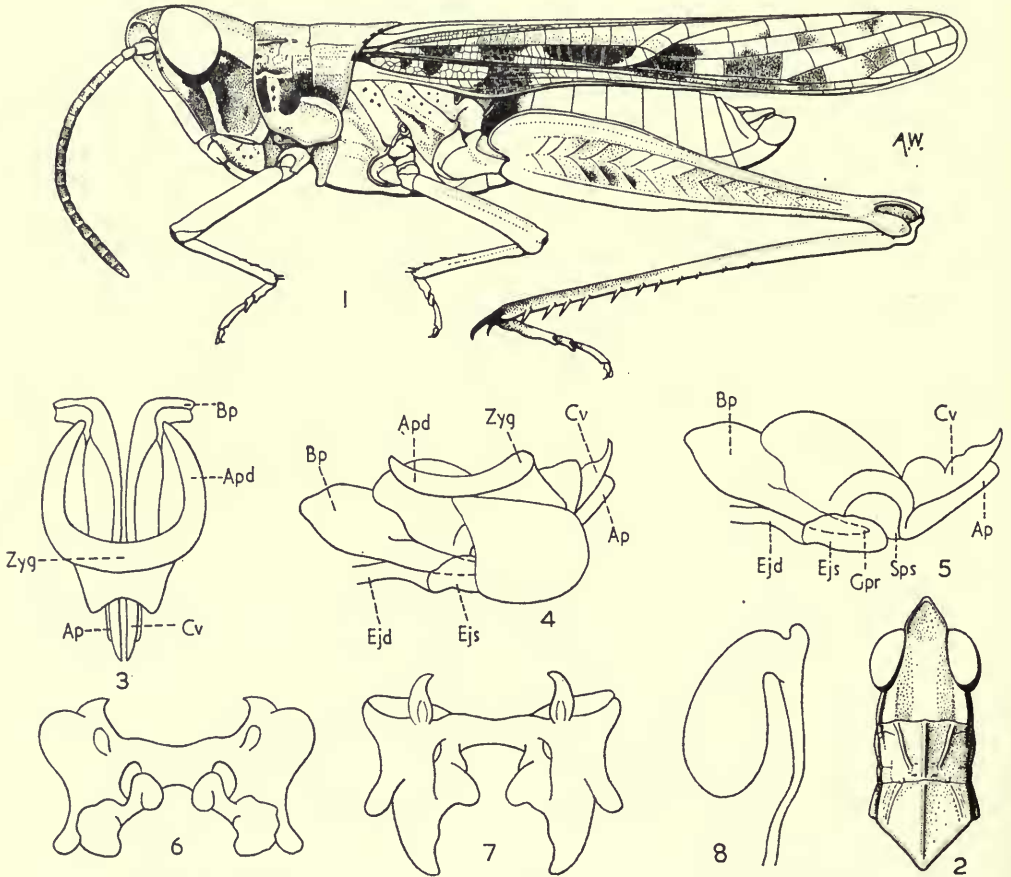


FIG. 19. *Calephorus ornatus* (Walker, 1870). 1, male. 2, head and pronotum from above. 3, phallic complex from above, ectophallic membrane and epiphallus removed. 4, the same, lateral view. 5, the same, but cingulum, except valves removed. 6, epiphallus, lophi in vertical position. 7, the same, but lophi in horizontal position. 8, spermatheca.

Phallic complex: zygoma of cingulum short and moderately narrow; apodemus moderately long, regularly incurved; valve of cingulum large, robust, with acute apex; basal valve of penis strongly excurved and slightly expanded; apical valve of penis short, robust, with obtuse apex; flexure comparatively thick. Epiphallus with small, articulated ancorae; lophi large, bilobate, with irregularly shaped lobes.

General colouration green or brown; lateral carinae of pronotum whitish; elytron with brown spots in medial area and further towards apex; thickening of intercalary vein whitish; hind wing pinkish at basal part and infumate in external part; sometimes colourless, with faint traces of darkening at margins; sclerotized part blackish; hind femur above, in middle with faint brownish fascia; hind tibia brownish.

♀. As the male, but larger. Antenna 19–20 segmented. Fastigium of vertex wider. Posterior margin of metazona of pronotum less acutangular. Elytron comparatively shorter, but exceeds end of abdomen. Subgenital plate with almost straight, slightly excurved apex.

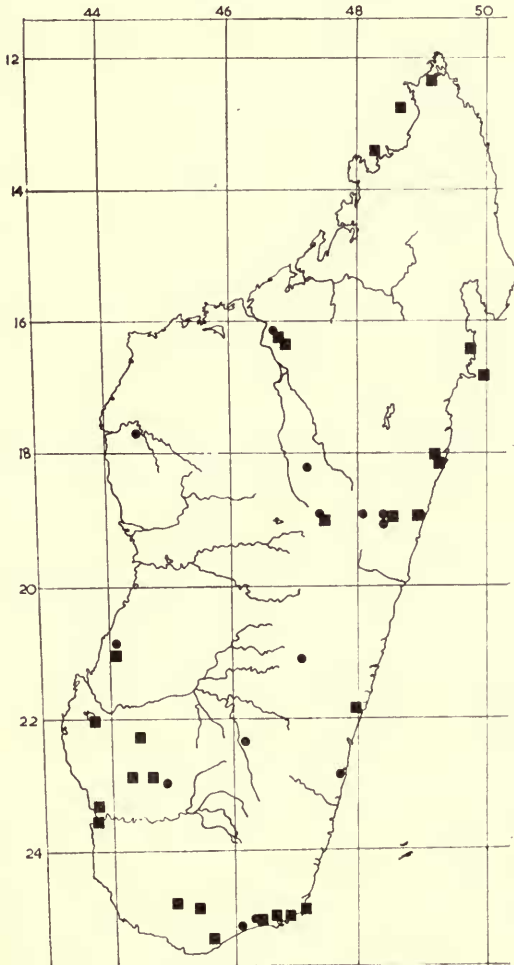


FIG. 20. Geographical distribution.

- Locusta migratoria capito* (Saussure, 1884).
- Oedaleus virgula* (Snellan van Vollenhoven 1869).

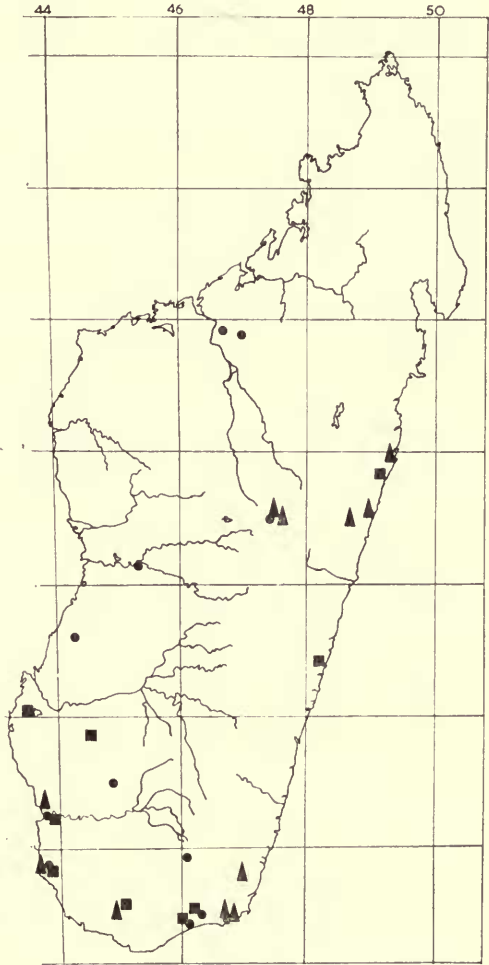


FIG. 21. Geographical distribution.

- Acrotylus patruelis* (Herrich-Schäffer, 1838).
- Acrotylus aberrans* Bruner, 1910.
- ▲—*Calephorus ornatus* (Walker, 1870).

Spermatheca with small, short apical diverticulum and large, short downcurved preapical diverticulum.

Length of body ♂ 11.8-14.9, ♀ 18.6-21.0; pronotum ♂ 2.6-3.2, ♀ 4.0-4.2; elytron ♂ 10.3-12.7, ♀ 14.0-15.5; hind femur ♂ 8.0-9.3, ♀ 10.6-11.7 mm.

Calephorus ornatus is very near to *Calephorus compressicornis* (Latreille, 1804). It differs by less widened antenna, by shorter fastigial foveolae, and more acute posterior margin of metazona of pronotum. It possibly belongs to the same species, representing only a geographical race.

Madagascar Centre: Tananarive, Tsimbazaza, 1 ♀. Ankadimanga, Manjakandriana, xii.1957, 1 ♀ (*J. Elie*).

Madagascar Est: Sakavondro, 40 m. vi.1957, 10 ♂, 9 ♀ (*A. Robinson*). Dct. Tamatave, Ambodihatafana, x.1958, 1 ♀. Perinet, 1 ♀. Station Agric. de Brickaville, 1 ♂, 5 ♀.

Madagascar Sud-Ouest: Lac Tsimanampetsotsa, Andranomby, 20.iv.1948, 1 ♂. Monombo, Tuléar, 10.v.1956, 4 ♂. Sakavondro, 225 m. forêt Isaka, 24.ii.1958, 1 ♂ (*P. Griveaud*). Ranomafana, Ifanadiana, 1 ♂.

Madagascar Sud: Fort Dauphin, iii.1960, 6 ♂, 4 ♀ (*R. Paulian*).

LIST OF SPECIES RECORDED FROM MADAGASCAR
BUT NOT FOUND IN THE MATERIAL STUDIED

Acrida turrita (Linnaeus, 1758)

This species was recorded from Madagascar by Saussure, 1899. It has never been recorded since and is probably the result of misidentification. Most probably it was *Acrida madecassa* Brancsik, 1893.

Aiolopus thalassinus (Fabricius, 1781)

This species was recorded from Madagascar by Krauss, 1877, Saussure, 1899 and Bruner, 1910. Much material of *Aiolopus* from Madagascar was studied, but all the specimens proved to be *Aiolopus rodericensis* (Butler, 1876). *Aiolopus thalassinus* was never encountered. These records were probably the results of misidentification.

Aiolopus sansibarus (Karsch, 1896)

The only record of this species from Madagascar is by Bruner, 1910. The species has never been recorded since and it is quite probable that this name is the result of misidentification.

Morphacris fasciata (Thunberg, 1815)

The only record for this species from Madagascar is by Saussure, 1884. Since then the species has never been recorded. The record is probably erroneous.

Pycnodictya galinieri (Reiche & Fairmaire, 1847)

The only existing record of this species from Madagascar is by Bruner, 1910. Most probably the species was confused with *Pycnocrania grandidieri* (Saussure, 1888).

Gastrimargus marmoratus (Thunberg, 1815)

This species was recorded from Madagascar by Saussure, 1884. It has not been recorded since. Probably this record ought to be referred to *Gastrimargus africanus* Sauss. which is abundant in Madagascar.

Acrotylus deustus (Thunberg, 1815)

The only existing record of this species from Madagascar is by Walker, 1870. It is most probable that the record is the result of misidentification, since this species has never been found in Madagascar since.

Acrotylus multispinosus Brancsik, 1893

This species is known only by the inadequate description. The type is lost. The species has never been recorded again. The identity of this species is unknown and cannot be established.

Calephorus compressicornis (Latreille, 1804)

This species was recorded from Madagascar by Bruner, 1910. It is most probable that the record ought to be referred to *Calephorus ornatus* (Walker, 1870). However, both species are so near that it is quite possible they represent only geographical races of the same species.

Brancsikellus gracilis (Brancsik, 1897)

This species is known only from a very inadequate description, and the type is lost. It is not possible to identify it now. I. Bolivar, 1914 placed it in the "group *Aiolopae*".

Truxalis nasuta (Linnaeus, 1758)

This species was recorded from Madagascar by Bruner, 1910 and by Sjöstedt, 1918. Both records are undoubtedly erroneous, since representatives of the genus *Truxalis* and of the subfamily *Truxalinae* have never been found in Madagascar. The records probably should be referred to the genus *Chromacrida*.

REFERENCES

References already included in Dirsh (1962 : 348-350) are not repeated here.

- BERTHOLD, A. A. 1827. *Latreille's natürliche Familien des Tierreichs*. Weimar.
 BOLIVAR, I. 1876. Sinopsis de los Ortópteros de España y Portugal. *An. Soc. esp. Hist. nat.* 5 : 79-130, 259-372.
 — 1890. Diagnósis de Ortópteros nuevos. *An. Soc. esp. Hist. nat.* 19 : 299-333, pl. 1.
 — 1893. Tableau pour la détermination des espèces du genre *Tryxalis* F. *Feuill. jeun. Nat.* 23 (no. 275) : 161-4.
 — 1895. Mission scientifique de M. Ch. Alluaud aux îles Séchelles (Mars, Avril, Mai 1892). Orthoptères. *Ann. Soc. ent. Fr.* 64 : 369-85, 386.
 — 1909. Observaciones sobre los Truxalinos. *Bol. Soc. esp. Hist. nat.* 9 : 285-96.
 — 1912. The Percy Sladen Trust Expedition to the Indian Ocean in 1905. Vol. 4, Sect. 16. Orthoptera. *Trans. Linn. Soc. Lond. (Zool.)* 15 : 263-92, pls. 13, 14.
 BRANCSIK, K. 1897. Series Orthopterorum novorum. *Jh. naturw. Ver. (MusVer.) Trencsin*, 19-20 : 52-85, pls. 1-3.

- BURR, M. 1902. A monograph of the genus *Acrida* (Stål), *Truxalis* Fabr., with notes of some allied genera and descriptions of new species. *Trans. ent. Soc. Lond.* 1902 : 149-87.
- BUTLER, A. G. 1876. Preliminary notice of new species of Orthoptera and Hemiptera collected in the island of Rodriguez by the naturalists accompanying the Transit of Venus Expedition. *Ann. Mag. nat. Hist.* (4) 17 : 409-12.
- DE GEER, C. 1773. *Mémoires pour servir à l'histoire des insectes*, 3 : 460-504, pl. 23.
- DIRSH, V. M. 1952. Two new genera of the subfamily Acridinae (Orthoptera, Acrididae). *Proc. R. ent. Soc. Lond.* (B) 21 : 135-9, 13 figs.
- 1962. Synonymic notes on African Acridoidea. *Rev. Zool. Bot. afr.* 65, 1-2 : 18-89, 3 figs.
- 1962. The Acridoidea (Orthoptera) of Madagascar. I. Acrididae (Except Acridinae). *Bull. Brit. Mus. (nat. Hist.) Entom.* 12 : 273-350 ; 40 Text-figs.
- FABRICIUS, J. C. 1781. *Species insectorum*, 1 : 341-71.
- FIEBER, F. X. 1852. In Kealch, A. *Grundlage zur Kenntniss der Orthopteren Oberschlesiens*, etc. 19 pp. Ratibor, Bögner.
- FISCHER, L. H. 1853. *Orthoptera Europaea*. 454 pp., 18 pls. Leipzig.
- HERRICH-SCHAEFFER, G. A. W. 1838. *Fauna insectorum Germanica initia oder Deutschlands-Insecten* etc. Heft 57, pl. 18.
- KEY, K. H. L. 1936. A revision of the genus *Paracinema* Fisch. (Orthoptera). *Trans. R. ent. Soc. Lond.* 85, 379-400, 3 figs., 1 map.
- KIRBY, W. F. 1902. Report on collection of African Locustidae formed by Mr. W. L. Distant chiefly from the Transvaal. *Trans. ent. Soc. Lond.* 1902 : 57-114, 231-41.
- LATREILLE, P. A. 1804. *Histoire naturelle générale et particulière des Crustacées et des Insectes. Orthoptera, Acrididae*. 3 : 280-84 ; 12 : 137-74. Paris.
- REHN, J. A. G. 1914. Orthoptera, I. Mantidae, Phasmidae, Acrididae, Tettigoniidae and Gryllidae aus dem Zentral-Afrikanischengebiet, Uganda und dem Ituri-Becken des Kongos. *Wiss. Ergebn. dtsch. zent. Afr. Exped.* 1907-1908, 5 (1) : 1-223.
- REICHE, L. & FAIRMAIRE, L. 1847. Orthoptera. In Ferret & Galinier, *Voyage en Abyssinie*, 3 : 420-33, pls, 27, 28. Paris.
- SAUSSURE, H. DE. 1884. Prodomus Oedipodiorum, insectorum ex ordine Orthopterorum. *Mém. Soc. Phys. Genève*, 28 (9) : 1-256, 1 pl.
- 1888. Additamenta ad Prodomum Oedipodiorum. *Mém. Soc. Phys. Genève*, 30 (1) : 1-182, pl. 2.
- SCOPOLI, J. A. 1786. *Deliciae Faunae et Florae Insubricae*, fasc. 1, 85 pp. 25 pls. Ticini.
- SJÖSTEDT, Y. 1928. Monographie der Gattung *Gastrimargus* Saussure (Orthoptera, Oedipodidae). *K. svenska VetenskAkad. Handl.* (3) 6 (1) : 51 pp. 12 pls.
- 1933. Neue Acrididen von dem Mt. Elgon und dem Brit. Ostafrika. Vorläufige Diagnosen. *Ent. Tidskr.* 54 : 215-216.
- SNELLAN VAN VOLLENHOVEN, S. C. & SELYS-LONGCHAMPS, E. 1869. In Pollen, F. P. L. & Van Dam, D. C. *Recherches sur la Faune de Madagascar et de ses Dépendances*. 5 (1) : 3, 11, pl. 2, f. 2.
- STÅL, C. 1876. Bidrag till södra Afrikas Orthopter-fauna. *Öfvers. Vetensk Akad. Förh.*, Stockh. 33 (3) : 31-58.
- THUNBERG, C. P. 1815. Hemipterorum maxillosorum genera illustrata plurimisque novis speciebus ditata ac descripta. *Mém. Acad. Sci. St.-Petersb.* 5 : 211-301. pl. 3, 7 figs.
- UVAROV, B. P. 1921. A revision of the genus *Locusta* L. (= *Pachytylus* Fieb.), with a new theory as to the periodicity of locusts. *Bull. ent. Res.* 12 : 135-63, 8 figs.
- 1941. Genus *Cloebora* Saussure, 1884. *Ann. Mag. nat. Hist.* 8 (11) : 298-302.
- 1953. Grasshoppers (Orthoptera, Acrididae) of Angola and Northern Rhodesia collected by Dr. Malcolm Burr in 1927-1928. *Publ. cult. Comp. Diam. Angola*. no. 21 : 9-217, 295 figs.
- ZOLOTAREVSKY, B. N. 1929. Le Criquet Migrateur à Madagascar (*Locusta migratoria capito* Sauss.). *Ann. Épiphyt.* 15 (4) : 185-235, 3 pls. 8 figs.

